PesticideNOTES

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West Nile Virus in Washington state

Keeping tabs on West Nile virus and preventing its spread

By Dr. Kathy Connell, WSDA and Dr. John Grendon, DOH

Since its arrival in the United States three years ago, West Nile virus has been detected in 44 states, including Washington. In 2002, more than 300 birds, and 50 horses statewide were tested for the mosquito-born infection. In that year, health officials confirmed two birds and two horses positive for West Nile virus (WNV). While no humans have contracted the disease in Washington, two cases were confirmed in residents who had traveled outside the state.

As for 2003, no one knows what the potential impact of the virus will be on birds, horses and people in Washington. However, based on the experience of other states, the presence of vector mosquitoes and the arrival of WNV to Washington last summer, it's likely additional birds will test positive for the virus and human and horse cases may occur.

Federal officials first discovered WNV-related illnesses in New York in 1999 where the disease had caused human and horse encephalitis cases, and bird deaths. This was also the first detection of WNV in the Western Hemisphere. In three year's time, the numbers of reported cases in people, horses and birds have ranged from single digits to hundreds of cases, as observed in several midwestern states.

Surveillance systems in the state are being finalized to provide timely WNV detection and ensure

continued on page 2

Treating mosquito-infested water: It takes technique, perseverance and a quick hand

By Terry Whitworth, Entomologist

Now that the mosquito-borne disease known as West Nile virus has become a threat to birds, horses and people in Washington, pest control operators have begun to receive numerous requests for mosquito control.

Until recently, there had been little demand for mosquito control in Washington state. As a result, a majority of operators have minimal experience with reducing populations of mosquitoes. The requests for control measures usually come from individual homeowners, harassed by mosquitoes around their home. The source is often distant wetlands outside the homeowner's control. Because adult mosquitoes can fly long distances, treatment of individual properties rarely provides the homeowner much relief. Other than offering recommendations for how to reduce breeding sites, an operator has limited options on a residential property that are both cost effective and ecologically sound.

THE STEEP LEARNING CURVE

Individuals considering mosquito control work face a steep learning curve. Initially, one must become familiar with mosquito biology, identification, monitoring tactics, and control strategies. Educational opportunities are limited.

continued on page 5

West Nile virus: A mosquito-born disease

West Nile virus, commonly found in Africa, West Asia and the Middle East, is spread by the bite of an infected mosquito. The virus can infect people, horses, and many types of birds.

Most people who become infected with West Nile virus either will have no symptoms or experience mild flu-like aches and pain. It's estimated that 20 percent of the people who get WNV develop fever, headache and body aches. However, on rare occasions, a West Nile virus infection can result in severe and, sometimes, fatal illness. About 1 in 150 persons infected with the virus goes on to develop severe illness, namely encephalitis or meningitis.

There is no evidence to suggest that West Nile virus can be spread from person to person (blood transfusion, organ transplant and breast milk transmission has been described) or from animal to person.

New permit needed to apply larvicide to Washington waterways

Due to the arrival of the West Nile virus in our state, the state Department of Ecology (Ecology) has issued a statewide umbrella mosquito control permit under the National Pollutant Discharge Elimination System (NPDES). Typically distributed by Ecology, the NPDES permit is being provided by the lead agency, the state Department Health (DOH).

Before any pesticide applicator may apply larvicide to a body of water or other water sources that flow into Washington waters – lake, river, stream, wetlands, retention ponds – the responsible land-owner, public agency, or organization must obtain coverage (blanket permission) under Ecology's NPDES permit. Ecology issues permits for the use of aquatic pesticides to ensure water quality is protected.

For more information about the permit, best management practices for mosquito control, and the online application for the DOH-provided permit, see *http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Permit.html*. For questions, contact DOH's Benjamin Hamilton, (360) 236-3364, or *benjamin.hamilton@doh.wa.gov*

"West Nile Virus in Washingon State..." cont'd from page 1

residents receive notice of how to prevent infection and generally reduce exposure to mosquitoes (see the state Department of Health Web site below).

DEAD BIRD SURVEILLANCE: BEST EARLY INDICATOR OF WNV

Corvids – crows, jays, magpies and ravens – will be the focus of Washington's surveillance of the disease. This is based on the experience of other states where an increased number of dead-bird reports, and positive WNV birds preceded human cases. In 2002, more than 300 Washington birds were tested for WNV; two, including a raven in Pend Oreille County, and an American Crow in Snohomish County, tested positive for the virus in September and October, respectively.

Two components to *dead bird surveillance* are (1) monitoring and mapping of dead bird reports to detect an increase in numbers and (2) WNV testing of appropriate birds. Veterinarians should report dead birds to the local health department – environmental health office (see phone book blue pages). Information will be taken and an evaluation done to determine if the bird is suitable for WNV testing. Birds that need testing will be evaluated and submitted by local health departments to the Washington Animal Disease Diagnostic Laboratory.

HORSE WNV CASE SURVEILLANCE

WSDA and DOH received the test results for 50 Washington horses last year and two were confirmed as positive for the disease. Because horses are dead-end hosts, no quarantines were issued for these horses. Both horses fully recovered.

In late August 2002, a WNV-positive horse was imported into Snohomish County from North Dakota. The one-year-old gelding never showed any clinical signs of WNV. It was examined and treated for a respiratory infection on September 3. The attending veterinarian tested for the virus because the horse had recently arrived from North Dakota where many horses contracted WNV the preceding year. This particular horse had not been vaccinated against WNV. Since this horse contracted the virus in another state, it is not being counted as a Washington case.

The first native Washington case occurred in a 14-year-old gelding in Island County. The horse became ill in mid-October 2002, although it had received the equine WNV vaccine on September 4 and October 2. The animal developed fever, anorexia, reluctance to move, ataxia and hyperesthesia on the face. On November 13, a veterinarian confirmed the horse positive for WNV.

In the second native case, an 18-year-old mare became infected in Whatcom County. The mare received its second WNV vaccination on November 7, 2002. A local veterinarian examined the animal for ataxia and muscle twitching later in November. This horse received a positive diagnosis for WNV on December 3.

To report possible WNV in equines, veterinarians should contact the:

* Local WSDA Animal Health Area Veterinarian
* State Veterinarian's Office, (360) 902-1878
* USDA Office in Washington, (360) 753-9430

To date, there is no evidence of horse-to-human WNV transmission or that horses serve as a WNV reservoir for mosquito transmission to humans. But the initial detection of this virus in some counties across the U.S. has been through

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To obtain extra copies, contact Maryann Connell at (360) 902-2050 or *mconnell@agr.wa.gov*

confirmed horse cases. DOH, WSDA and the United States Department of Agriculture (USDA) have requested that veterinarians report equine encephalitis cases of unknown etiology to test for possible mosquito-borne disease.

In support of local WNV diagnostic efforts, the Washington Animal Disease Diagnostic Laboratory (WADDL) has implemented assays for detection of antibodies in equine serum and CSF, and for molecular detection of viral nucleic acids using PCR and antigens using IHC. Practitioners with questions about the diagnosis of suspected equine WNV may contact WADDL at (509) 335-9696. Fatal cases of suspect WNV will also be tested for rabies at the state's Public Health Laboratory.

HORSE WNV VACCINE INFORMATION

The most common question from veterinarians is about the equine vaccine. Fort Dodge's vaccine requires two doses, administered intramuscularly, three- to six-weeks apart. Immunity may not develop for four-to six-weeks after the second dose and it can take up to 10 weeks for a vaccinated horse to become protected. An annual booster is necessary to continue the protection. Clients should be advised that vaccinated horses might develop an antibody response, which may affect the international export of vaccinated animals. Horses vaccinated against other mosquito-borne diseases (EEE, WEE, VEE) are *not* protected against WNV.

Although now fully licensed by USDA, Fort Dodge does not have immediate plans to make this vaccine available over the counter. Veterinarians may dispense this vaccine to clients with a valid veterinarian-client-patient relationship. The vaccine should not be offered for sale over the counter or dispensed without a valid veterinarian-client-patient relationship. There is no individual packaging available that meets the USDA rules for dispensing biologics.

HUMAN WNV CASE SURVEILLANCE

In 2002, no cases of human West Nile virus were reported in Washington. However, last year, two Washington residents had traveled outside the state, been exposed to mosquitoes in Michigan and Louisiana, and confirmed positive for the disease. Both those states had significant WNV activity last year.

During the summer and fall months, people should take steps to reduce mosquito populations on their premises. Some measures include draining or treating stagnant water, mowing grass and weeds, applying repellents and putting up screens to protect homes and stables from mosquitoes. Repellents and insecticides should be used only according to directions. Horse owners may want to stable their animals at night to provide added protection. The state's Public Health Laboratory is prepared to test for suspected cases of human WNV. For detailed information about what individuals can do to reduce their risk of WNV infection and infection to animals, visit the state Department of Health Web site: *http://www.doh.wa.gov/EHP/TS/ZOO/WNV/WNV.HTML.*

For more in-depth information on West Nile Virus, visit the following Web sites:

- USDA: *http://www.aphis.usda.gov/oa/wnv/*
- CDC: *http://www.cdc.gov/ncidod/dvbid/westnile/qa/wnv_dogs_cats.htm*

To review data tables, visit the following sites:

- U.S. human case data (2002): *http://www.cdc.gov/od/oc/media/wncount.htm*
- U.S. horse case data (2002): *http://www.aphis.usda.gov/lpa/issues/wnv/eqimap02.html*
- U.S. bird data (2002): *http://cindi.usgs.gov/hazard/event/west_nile/usa_avian_jan_17.html*

These tables show the incidence and epidemiological spread of the WNV in the United States as it affects humans, horses, and birds.

For more links to West Nile Virus information, visit:

- *http://www.wa.gov/agr/PestFert/Publications/Newsletter/2003.htm*

West Nile Virus: Cases of Infection (I) and Death (D) Among U.S. Residents

	I	D
Alabama	49	3
Arkansas	43	3
California	1	
Colorado	14	
Connecticut	17	
Delaware	1	
D.C.	34	1
Florida	28	2
Georgia	44	7
Illinois	884	64
Indiana	293	11
Iowa	54	2
Kansas	22	
Kentucky	75	5
Louisiana	329	25
Maryland	36	7
Massachusetts	23	3
Michigan	614	51
Minnesota	48	
Mississippi	192	12
Missouri	168	7
Montana	2	
Nebraska	152	7
New Jersey	24	
New York	82	5
N. Carolina	2	
N. Dakota	17	2
Ohio	441	31
Oklahoma	21	2
Pennsylvania	62	7
Rhode Island	1	
S. Carolina	1	
S. Dakota	37	
Tennessee	56	7
Texas	202	13
Vermont	1	
Virginia	29	2
W.Virginia	3	2
Wisconsin	52	3
Wyoming	2	
Totals	**4156**	**284**

Source:
Centers for Disease Control and Prevention, Atlanta, GA

Check out licensing requirements for mosquito control

As mosquito control districts and public health departments prepare for the possibility of new cases of the West Nile virus, WSDA has begun to receive an increasing number of queries about the proper pesticide licenses for conducting mosquito-control applications.

Whether or not a license is required is dependent on who the applicator works for and the type of pesticides being applied. Any *commercial application* of a mosquito-control pesticide requires a license. *Public employees* require a license when using power equipment or a restricted use pesticide. *Individuals* applying pesticide to their property or an employer's land only need a license when applying a restricted use pesticide.

So, do mosquito-control products fall in the restricted use category? Some do while others do not. With only a few exceptions, pesticides applied to aquatic sites, including those used to control *mosquito larvae*, are state restricted use. Pesticides used to control *adult mosquitoes* may or may not be restricted use. Restricted use products are identified on the front panel of the pesticide label.

If an applicator license is required in the use of mosquito-control pesticides, one of the following types of licenses will be needed.

- *Private Applicator:* Person who applies or supervises the use of a restricted use pesticide to their own or their employer's agricultural land (i.e. farms, ranches, greenhouses, nurseries, forests, etc.)
- *Private Commercial Applicator:* Person who applies or supervises the use of a restricted use pesticide to their own or an employer's non-agricultural land (i.e. apartment complexes, private golf courses, private institutions, apple warehouses, grain storage facilities)
- *Commercial Applicator:* Head of a commercial business that applies pesticides to the land/property of others
- *Commercial Operator:* Employee of a commercial applicator who applies or supervises the use of any pesticide as part of the business;
- *Public Operator:* Public employee who, as part of their public agency job, applies or supervises the use of any pesticide through power equipment or any restricted use pesticide (i.e. city, county, state, federal, or public utility).

In order to qualify for one or more of the above licenses, an individual must pass the appropriate exams. Private applicators need to pass the *Private Applicator Exam;* they also need to pass the *Aquatic Exam,* when making larvicide applications to water that flows off their property. All other license types must pass the *Laws & Safety Exam*, and category exams in areas in which they plan to work.

Here is a review of the categories that might be appropriate.

- Public Health Pest Control and the statewide categories allow for both larvicide and adulticide applications (*Note: The exam for the statewide category is no longer available*.)
- Aquatic Pest Control allows for both larvicide and adulticide aquatic applications
- The following categories allow for adulticide applications on premises described by the category:
  - Agricultural Insect and Disease
  - Turf and Ornamental Insect and Disease
  - Pest Control Operator General (sites include those in and around homes and other buildings)
- Livestock Pest Control allows for applications on and around livestock.

For further information on licensing requirements, go to *http://agr.wa.gov/PestFert/LicensingEd/Licensing.htm#GettingLicensed* or call Pesticide Licensing toll free, (877) 301-4555.

WSU offers pre-license training in aquatic and public health pest control

The Pesticide Education Program at Washington State University (WSU) plans to offer pre-license courses for people interested in either or both Aquatic Pest Control and Public Health Pest Control. There is no date scheduled for classes, however, training sessions will begin once demand meets a minimum attendance level. The training will include a segment on *Washington Laws and Safety*.

New licensees conducting aquatic or public health pest control must take the *Washington Laws and Safety Exam* in addition to categorical exams for areas in which they plan to work.

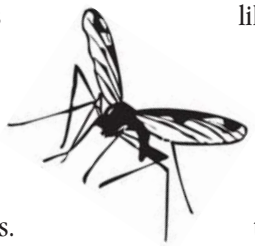
Depending upon the demand, courses either will be (1) located at a predetermined classroom (lecture style) with an exam session at the end, or (2) conducted by audio conference whereby attendees will phone in to WSU from their workplace. In the latter instance, attendees must have computers capable of downloading Internet files and, upon time for examination, be able to travel to a WSDA testing site.

Individuals interested in attending a lecture-style class or audio conference may contact Carol Ramsay at *ramsay@wsu.edu* or (509) 335-9222. Carol will catalog requests and schedule the desired course type. Once a course has been scheduled, WSU will contact interested parties and also will announce the course on the WSU Pesticide Education Program Web site at *http://pep.wsu.edu*.

The other training option is to simply purchase the study materials, read the texts, then take the state exams at a WSDA testing site. Study materials may be purchased from WSU Bulletins at 1-800-723-1763 or *http://pubs.wsu.edu*. Go to the Web site's search field and type in Aquatic Pest Control to locate the following materials: *Laws and Safety, MISC0056; Aquatic Pest Control, MISC0134; and Public Health Pest Control, MISC1051.*

"Treating mosquito-infested water..." cont'd from page 1

The best mosquito resources are seminars, textbooks and memberships in organizations, such as the *American Mosquito Control Association*. It also helps to talk to people working regularly with mosquitoes, namely employees of mosquito abatement districts. Ideally, mosquito treatment focuses on *larvae* developing in water. Several insecticides target mosquito larvae with little or no impact on non-target organisms. Once adults emerge, they can disperse over large areas, and control requires treatment with mists or fogs. Pesticides that kill adult mosquitoes also kill non-target insects, such as bees and other beneficial insects.



In this state, the state Department of Ecology (Ecology) regulates treating waters of the state (water sources of almost any type that flow or have the potential to flow into rivers, lakes, wetlands, and the like); a special permit is required to treat mosquitoes in water. The permit application process is complex and can take several months or more to complete. It is almost impossible to get a permit in time to respond to a specific complaint, unless the problem is declared an emergency. The state Department of Health (DOH) has worked with Ecology to resolve the permit issue for the use of larvicides. Ecology recently issued DOH a blanket National Pollutant Discharge Elimination System (NPDES) permit, allowing that agency to extend coverage to other entities in a more time-sensitive manner. (See box below)

IDENTIFYING MOSQUITO SPECIES AND TREATMENTS

Once you're successful in obtaining a permit to treat water, you will need to determine mosquito species present in your area and, specifically, where they are breeding. An applicator also needs to learn how to capture larval and adult mosquitoes, as well as rear mosquito larvae to adults. If you want to identify species of mosquitoes yourself, purchase a good *stereomicroscope* and a high quality light. A *stereobinocular zoom microscope* capable of 40X to 60X magnifications with a fiber optic light is a good option. Expect to spend at least $1,500 for a quality scope and light.

Larvae usually are collected by dipping. Using this method, an operator scoops up larvae using a "dipper" that resembles a long-handled ladle. Larvae float near the surface of water, and anything other than a quick scoop-of-the-hand will send them diving to the bottom. Adults may be collected in one of several ways: (1) using a light trap, (2) CO2 trap, (3) a net, or (4) reared from larvae.

For short-term control of larvae (24 hours or less) you can use *Bacillus thuringiensis var.israelensis*. Where longer life product is needed (up to 3 weeks or more), especially in polluted water, *Bacillus sphaericus* may be used. Where long-term control is desired an operator may use Altosid Briquets (*methoprene*), which have a 30- to 150-day residual life. These products are effective only in the first three larval instars or the early fourth instar. (An "instar" is the stage of development in the life of a larval mosquito that occurs between molts.) For late fourth instar larvae or pupae, you can use monomolecular films. Broad spectrum, non-selective insecticides like *temephos or malathion* are not permitted, except in an emergency.

If you chose to treat adults on terrestrial sites, no special permit is required. Products labeled for treatment of adults contain *permethrin, pyrethrin, SBP1382, sumithrin, malathion*, or *naled*. These products usually are fogged with truck mounted or backpack equipment. Some products have special restrictions around water. The best results are achieved by using equipment that generates a ULV fog (around 50 microns or less), since mosquitoes can avoid larger sized droplets produced by misters (over 100 microns). Thermal foggers are also available, but seldom used anymore because they produce dense, irritating smoke. In much of the country, adulticides are applied with truck mounted units where whole neighborhoods are treated.

Spraying early in the morning or in the evening when temperatures are cool and winds are low can minimize adverse effects on beneficial insects, such as bees.

In Western Washington, some residents may insist that an operator avoid their property when treating a water source. Obliging these requests means using smaller equipment, such as backpacks that are capable of directional and selective treatment.

For more detailed information on the techniques used to control mosquitoes, contact Whitworth Pest Solutions, Inc. in Puyallup, Wash. at (253) 845-1818. Another option is to contact your local WSU county extension office. (See the telephone directory's county pages under "Cooperative Extension.")

How to get a NPDES permit

Government agencies and other landowners interested in acquiring a permit to treat mosquito-infested waters must apply for a special permit known as the NPDES permit.

In light of the threat that West Nile virus poses, and residents' concerns, the state departments of Health and Ecology have teamed up to make this permit reasonably available to agencies and landowners. The permit and the on-line application are readily accessible through the Health Web site. The Department of Health expects a seven- to 10-day turn around time once an application has been received and reviewed. To view the permit and to apply on-line for coverage under Health, visit the DOH site at: *http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Permit.html*

WSU pesticide recordkeeping survey

by Carol Ramsay and Carrie Foss, Washington State University

For more information on the recordkeeping survey, funded by USDA Agricultural Marketing Services, contact Carol Ramsay (509) 335-9222 or *ramsay@wsu.edu*.

Are you an applicator who believes you are in full compliance with WSDA pesticide recordkeeping requirements, or, otherwise, coming up short? A recent survey of pesticide applicators may show you where you fit into the compliance continuum.

Ninety percent of the survey respondents reported that they made pesticide applications and, of that total, 73 percent claimed responsibility for keeping records. While the data indicates that most respondents remain quite aware of recordkeeping requirements, statistics also show there is less compliance in the recording of wind speed, and start and stop times of applications. The survey group (see page 7) exhibited a high compliance with the Washington requirements that all licensed applicators keep application records (89 percent), that records are recorded within 24 hours (94 percent), and kept for seven years (87 percent).

However, only 62 percent of the respondents were in compliance with recording wind speed in the required mph; the other 38 percent used general terms such as "gusty," "calm," and "variable." When asked how they measured the wind speed, only 21 percent claimed they used an instrument that could measure in mph (wind meter or anemometer). Still others used their best estimate (40 percent), a local weather station (10 percent), local television/radio stations and Internet Web sites (12 percent), flag or flag pole (7 percent), and other (6 percent).

Wind direction is one of the most important recordkeeping items when trying to avoid drift to sensitive areas downwind of an application. Wind direction measurements are required, but the law does not stipulate that a compass reading be obtained. Six percent of the respondents indicated they used a compass and measured degrees, while 94 percent categorized wind direction by generic compass points (i.e. SW). As with wind speed, the highest percentage (44 percent) claimed they used their best estimate for determining wind direction.

Clearly, the applicator responses to the 2002 survey indicate that improvement is needed in measuring techniques for wind speed and direction. This is particularly true when applications occur in the vicinity of sensitive areas. Sometime in 2004, WSU's Pesticide Education Program plans to offer training on wind instrumentation and measurements.

The survey revealed other areas where applicators' actions are falling short of the legal requirements. These include recording application start and stop times, EPA registration number, surfactant names and amounts, and total area treated.

Application start and stop times were only recorded 65 and 67 percent of the time, respectively. Unfortunately, WSDA recordkeeping forms 1, 2 and 4 have a general column for "time" instead of specifically listing the start and end times. If you use one of these forms, be sure to record both times. [*Editor's note: The proposed General Rule revisions (see page 9) will address these omissions.*]

Additionally, respondents only recorded the EPA registration number 66 percent of the time. All pesticides registered in Washington, with the exception of adjuvants, have an EPA registration number on the label. Many respondents were not aware that they needed to record surfactant names and application volumes on application records. Washington law classifies all adjuvants (surfactants, oils, buffers, dyes, defoamers, etc.) as pesticides. Therefore, all adjuvants, including the most commonly used surfactants, must be recorded by brand name.

Lastly, total area treated is required but often not included. Calculating total acres may be straightforward in large agricultural applications, but a little trickier for indoor applications, yards and roadways. The only exceptions to this requirement are when an applicator does spot spraying and when certain PCO applications are performed. In these situations, the applicator may record "spot spray" or the appropriate application type instead of total area.

Some applicators believe that they do not need to keep "pesticide" application records because they only apply herbicides. Pesticide is an umbrella term attributed to any product claiming "pest" control whether that pest is a weed, fungi, rodent or insect.

Survey respondents

Between January and March 2002, more than 2,100 applicators took a compliance survey and responded to questions that covered broad recordkeeping practices. The respondents were professionals attending recertification courses at the WSU Pesticide Education Program.

Those completing the survey fell into the following license categories:

Public Operator	54%
Private Applicator	19%
Commercial Applicator/Operator	15%
Private Commercial	8%
Other	4%

Recordkeeping can be time-consuming and inconvenient. But the human mind is not a computer that can easily retrieve data on yesterday's or last week's application. Your records not only provide you with valuable information about the effectiveness of your applications, but they are your best defense if the application is called into question. Put simply, records prove that you performed a professional, accurate and legal application.

Recording non-required items can increase the professionalism of your records as well. These might include things such as:

1) Did not spray on 7/1/03 because the wind was blowing towards an occupied school,
2) Turned off the spray boom at 3:49PM as school bus approached, resumed spraying at 3:55PM after the bus had cleared the horizon, or
3) Changed nozzles to air induction nozzle size xyz due to my concern for an organic crop 1/2 mile downwind.

WSDA recordkeeping requirements are found in RCW 17.21.100 and WAC 16-228-1320. Information on recordkeeping, including WSDA forms, is available at *http://agr.wa.gov/PestFert/Pesticides/ComplianceActivities.htm#Recordkeeping* or by contacting Compliance Services toll free, (877) 301-4555.

Submit timely records to avoid fines

Pesticide applicators and structural pest inspectors: Learn about new policy changes

Over the past several years, WSDA has experienced numerous instances where requests for records or inspection reports have either been ignored or forgotten. In fact, during the last 12 months the department issued several fines and license suspensions to pesticide applicators and structural pest inspectors who failed to submit timely records or reports. Application records and inspection reports provide essential evidence necessary to conduct thorough investigations.

To remedy the problem, the department recently changed its policy related to how pesticide application records and wood destroying organism (WDO) inspection reports are requested. This change is part of a process improvement plan intended to obtain necessary records and reports in a timely manner, and, ultimately, complete compliance investigations and inspections quickly.

When requests for records are made by Compliance Services, the following steps occur:

- An applicator or structural pest inspector receives a formal request in writing asking that specific records/reports be provided by a specific time
- Records or reports must arrive to the requestor by the date identified in the original request
- Individuals who fail to provide records/reports by the requested date will be issued a Notice of Correction

A Notice of Correction spells out the reason an applicator or inspector is not in compliance, and it gives the person another opportunity to submit records/reports by a new date. If these items still are not received by the date provided in the Notice of Correction, the department would likely impose a fine and/or license suspension.

BACKGROUND

Since August 1989 all certified applicators who apply pesticides, and persons who apply pesticides to more than one acre of agricultural land in a calendar year, must keep records of their pesticide applications.

This includes all certified applicators that apply pesticides commercially and public entities engaged in roadside spraying of pesticides. In 1994, the recordkeeping requirement was extended to include unlicensed pesticide users who apply product to certain landscape sites. These sites include, but are not limited to, schools, nursery schools, licensed day cares, apartment complexes, shopping centers, golf courses, and parks. The laws and rules require that those records must be submitted to the department upon request.

The requirement to maintain and submit WDO inspection reports when requested by the department has been in effect since April 1992.

For further information, contact Compliance Services toll free, (877) 301-4555.

EPA Funds *Pesticide*NOTES

The EPA's Region 10 office in Seattle has recognized the value of *Pesticide*NOTES by once again providing funding for its development and distribution. We gratefully acknowledge this support. WSDA and EPA join in hoping that this publication provides you with valuable information.

Structural pest inspectors, consumers to benefit from law change

A recently enacted law will offer individuals licensed as *structural pest inspectors* new options for complying with WSDA's financial coverage requirement. The law also creates a unique *Structural Pest Inspector license* and requires businesses that employ these professionals to obtain a no-fee company license.

Since 1991, the department has licensed individuals who perform structural pest inspections, requiring them to follow specific inspection criteria. These requirements were placed into pesticide law in the wake of consumer complaints about faulty inspections that often resulted in significant economic losses for homebuyers and sellers. Beginning in 2000, WSDA required all inspectors to provide proof of financial coverage in the form of an errors and omissions insurance policy or surety bond, and place WSDA inspection control numbers on reports. These measures help to protect consumers by ensuring that they hire only licensed and financially secure inspectors.

THE REVISED LAW DOES THE FOLLOWING:

- Broadens allowable forms of financial responsibility**.**
- Revises and expands the accepted forms of financial coverage. Previously, two forms were accepted: A $25,000 surety bond or a $50,000 errors and omissions insurance policy written on a three-year occurrence basis. The revised law makes the following forms of financial coverage acceptable:
  - $25,000 errors and omissions insurance policy written on a two-year occurrence basis;
  - $25,000 surety bond that allows suit to be brought against it for legal damages as a result of the actions of the structural pest inspector for up to two years after the inspection;
  - $12,500 surety bond with the same conditions as above combined with a $25,000 non-occurrence based errors and omissions insurance policy; and,
  - $25,000 assigned account held by the department to satisfy any judgment for legal damages resulting from errors and/or omissions in an inspection.
- Simplifies tracking of the financial coverage for inspectors. The new law requires companies that perform complete wood destroying organism (WDO) inspections* to obtain a structural pest inspection company license at no cost. The company must identify employees who perform structural pest inspections and notify WSDA of any changes to this information within 30 days. Since companies almost always supply the financial coverage for their inspectors, the change allows the department to efficiently track individual inspectors. It also will streamline the licensing process for companies with more than one employee.
- Creates a unique *Structural Pest Inspector license*. Before this, inspectors were licensed as commercial consultants and required to pass exams that included information on pesticides. With a distinct license type, inspectors now will only be required to demonstrate knowledge within their areas of responsibility: 1) structural pests, 2) damage caused by these pests, 3) conditions conducive to infestations, and 4) the regulations governing inspections.
- Gives WSDA the authority to adopt rules requiring licensees to earn recertification credits in specific areas. The department will not propose such rules for structural pest inspectors without close consultation with the industry and assurances on the availability of adequate continuing education courses.

PUTTING THE REVISED LAW INTO PLACE

WSDA and Washington State University's Pesticide Education Program are working with a committee to develop revised examination and study materials for new inspectors. Existing exams and study materials will be used until new materials are in place. Individuals with current licenses will not need to take additional exams. In addition, the department has sent all currently licensed structural pest inspectors information on the company license and the financial coverage options.

**Inspections for the purpose of determining evidence of infestation, damage, or conducive conditions as part of the transfer, exchange, or refinancing of any structure in Washington.*

Direct your questions about the new requirements to any of the following staff:

Cliff Weed - (360) 902-2036
Compliance Services Program Manager

Dan Suomi - (360) 902-2044
WDO Specialist

Margaret Tucker - (360) 902-2015
Certification & Training Manager

Hugh Watson - (360) 902-2016
Certification & Training Specialist

Plastic pesticide container recycling available

Free recycling options are available statewide at scheduled events. In addition, on-site recycling may be arranged for large quantities of plastic containers. For information about container preparation and collection site schedules, please contact the statewide ACRC recycler at (509) 457-3850 or visit the following Web sites for more information:

- **Northwest Ag Plastics** *http://www.nwagplastics.com*
- **ACRC Ag Container Recycling Council** - *http://www.acrecycle.org/*
- **Washington State University** *http://pep.wsu.edu/waste/wd.html*
- **National Pesticide Stewardship Alliance** - *http://npsalliance.org/*

Photo courtesy of Lee Brown, Jr. Western Ag Plastics

In Washington, it is illegal to burn any container that held a pesticide. Agricultural burning information may be found at *www.ecy.wa.gov* or by contacting your regional Ecology office. Illegal burning activity can be reported on Ecology's toll free number, 1-866-211-6284.

Department seeks comment on pesticide rule changes

It is time, again, for WSDA to review the general pesticide rules (WAC 16-228) and seek public comment on proposed changes. Every four years, the Governor's office requires state agencies to review their rules to ensure that they are current, concise, clear, and effective. Unlike laws, which are adopted by the Legislature, rules are adopted by state agencies.

In order to adopt rules, agencies must follow the requirements of the Washington Administrative Procedures Act (Chapter 34.05 RCW). This act allows agencies several options for fulfilling the public comment requirement. WSDA is eager to hear your suggestions on proposed wording changes.

WSDA staff has suggested changes, and rule drafts have been sent to the Pesticide Advisory Board for comments. In addition to the general text clarifications, the proposals include:

- Changing to a question-and-answer format as requested by the "clear and readable" directive from Gov. Gary Locke
- Adding a requirement for positive identification for the purchase of restricted use pesticides
- Changing the expiration date for all pesticide licenses to December 31, with the exclusion of *Pesticide Pealers*
- Combining the dealer record keeping requirements into one section and making it a requirement to list the specific crop for restricted use pesticide sales
- Prohibiting the application of any pesticide by airblast sprayers or aircraft near occupied schools in session, hospitals, nursing homes or other similar establishments under conditions that may result in contamination of these establishments or their premises
- Changes to the *Structural Pest Inspector* license and definitions to address recent legislative changes

If the general rule changes are adopted, separate rules on methyl parathion will be eliminated, and the rule on the use of Ziram will be incorporated into the general rules.

Hearings on the final proposals will be held in late summer or early fall. To receive notification on the hearings, contact Laurie Mauerman at (360) 902-2012 or *lmauerman@agr.wa.gov* or write to WDSA, Pesticide Management Division, P.O. Box 42589, Olympia, WA 98504-2589. To view the proposed changes online, go to *http://agr.wa.gov/PestFert/RuleMaking/default.htm* and click on *Pesticides.*

Change in fumigant rule will reduce potential for accidental spills

The agency's secondary containment rules (WAC 16-229) were modified to increase the maximum allowable size of temporary field storage tanks for soil fumigants to 10,000 gallons. Prior to this change, effective April 2003, the maximum size container allowed for soil fumigants was 2,500 gallons. Bulk liquid pesticides other than soil fumigants continue to carry the 2,500-gallon tank restriction. Regardless of size, temporary field storage containers may not remain in the same location for more than 14 consecutive days in a six-month period.

The goal behind the rule change is to reduce the number of times that soil fumigants are transferred and delivered. This will substantially reduce the potential for accidental spills. For further information, contact Cliff Weed, Compliance Services Program Manager, at (360) 902-2036.

CASE FILES: A case of exoneration

Editor's note: The 2002 edition of *Pesticide***NOTES** included the first edition of *Case Files* in which a drift investigation of Monitor® 4 was highlighted. While this WSDA investigation resulted in multiple violations, many cases – including the one in this article – have different outcomes.

All names have been changed to protect the privacy of those involved.

WSDA pesticide investigations can result in warnings, notices of correction, fines and/or license suspensions. The department actively pursues its toolbox of actions when sufficient evidence of a violation exists. However, agency investigators will close a complaint case if they cannot turn up enough evidence to support a violation. In fact, evidence collected during an investigation may yield a positive conclusion: That an application was made in a legal and safe manner.

In one particular case, a fixed-wing aircraft sprayed a *wettable powder sulfur* product on a mint field. A housing complex was located directly west of the mint field with some houses as close as 60 feet from the field. Another mint field was located directly north of the housing complex. (See map on page 11.)

On the afternoon of June 10, WSDA received phone calls from the Yakama Nation, the Environmental Protection Agency (EPA) and a private citizen affiliated with the housing complex. Residents had lodged two separate complaints against the pesticide applicator. Under certain circumstances, department investigators are authorized and credentialed by EPA to conduct federal pesticide investigations. Because the state lacks jurisdiction over activities within Indian reservations, and the EPA has enforcement agreements with certain tribes, the EPA requested that WSDA investigate.

The department investigator interviewed several witnesses, including Janet Smith. Mrs. Smith's house was located two blocks west of the homes closest to the mint field. On June 10 between 11:30 a.m. and noon, she smelled a chlorine odor in the air as she watched the yellow and blue plane spray the field. The plane flew quite low and grew louder as it cruised over the houses, she said. It sprayed a clear substance that sprinkled the houses behind the complex, she added.

Linda Jones's house was adjacent to the mint field. When the spraying began she was at work while her children were home. After the exposure, Mrs. Jones became concerned about the health of her children. Much earlier in the day, around 3 a.m., her daughter started to experience difficulty breathing, swallowing and talking. The girl's symptoms prompted Mrs. Jones to take her to the hospital. Linda's sons, 15-year-old Bob Jones and his 12-year-old brother, Wayne, were inside the house. The boys told the investigator that at about 10:00 a.m. the plane flew over the house, but it was unclear as to whether any spray landed on their property.

On that same day, John Wilson, the Jones's neighbor directly to the south, was mowing his lawn. At roughly 10:30 a.m., he observed the yellow plane spraying the mint field to the east of his house. Then, he noticed a strong, bitter smell that forced him to quit mowing and go indoors. According to Mr. Wilson, the wind was calm, and he did not see or feel any spray fall on his property.

WSDA sometimes conducts applicator inspections during a complaint investigation. Two days after the mint field complaint, the investigator visited the applicator's workplace. The inspection focused on compliance with several requirements: record keeping, pesticide handling and storage, availability of personal protective and other safety equipment, condition of application equipment, and empty container management.

With this particular inspection, the investigator assigned a "satisfactory" rating on every category, and came away impressed with the applicator's operation. He noted that the equipment was clean and in good condition, and that they had acquired a new mix-load truck with built-in secondary containment. The yellow and blue plane (flown by the applicator) was equipped with a Global Positioning System (GPS) unit that tracked the plane's exact location as it applied chemicals. Data from the day of the incident could then be downloaded and charted by computer to create an "application" map.

The records showed that the application to the mint field occurred June 10 at 10:55 a.m. A westerly wind blew an estimated 1- to 3-mph. It blew away from the housing complex – as per smoke – a common method aerial applicators use to test wind conditions.

Sampling and chemical analyses are a normal part of most investigations. Usually, if the active ingredient of the applied pesticide is detected off-target and on the complainant's property, it indicates that drift or over-spray occurred. However, in this situation, the active ingredient, sulfur, occurs naturally in soils and plants. Sulfur that lingers in the atmosphere (industrial emissions) and, more commonly, fertilizer applications can skew sample results. That said, a high sulfur level found on the complainant's property might be significant if these other sources are ruled out.

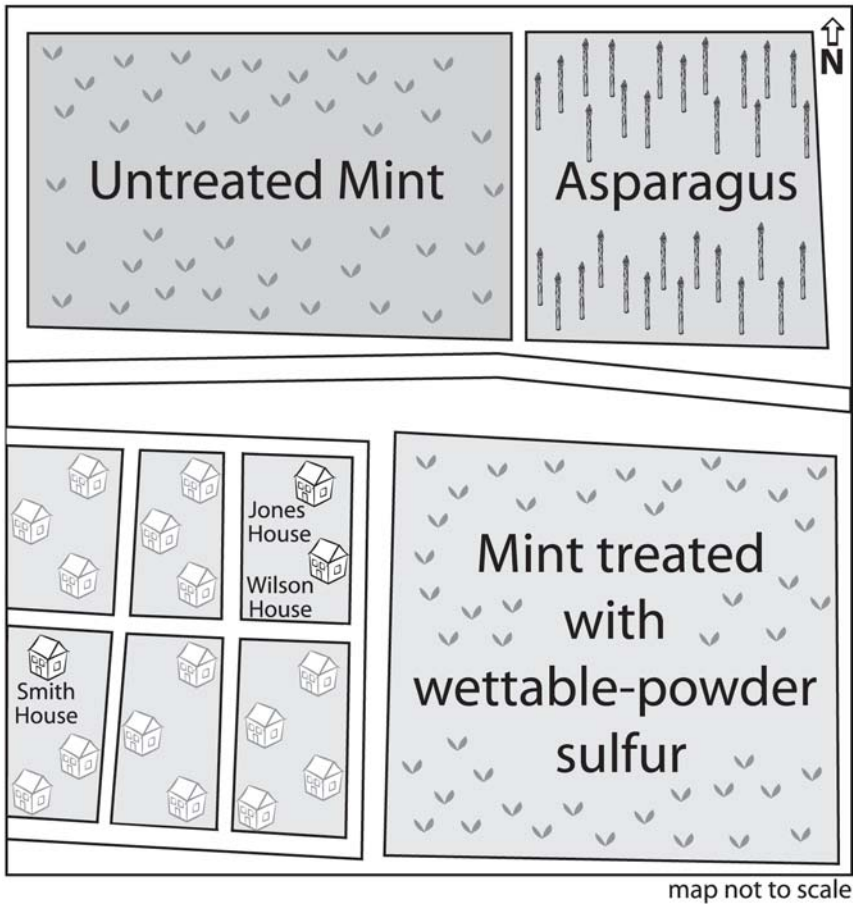
Since sulfur exists in both the atmosphere and fertilizers, it complicated matters. Mrs. Smith's house was too far away from the mint field to conclude anything from sampling. Mr. Wilson told the investigator that he recently fertilized his lawn with a

21-0-0 product (ammonium sulfate: contains approximately 24 percent sulfur). The investigator took samples from the Jones's property since it was close to the mint field and free of fertilizer. The samples resulted in the following:

- A sample from the mint field analyzed at 285 parts per million (ppm) sulfur.
- A sample of grass from the eastside of the Jones's property analyzed at 0.64-ppm sulfur.
- Finally, a swab sample taken from an eastside window showed no sulfur residue.

The investigator also obtained a sample from the mint field located north of the housing complex. It had not been fertilized or sprayed recently. The mint foliage from the untreated field tested at 2.6-ppm sulfur, *higher* than samples from the Jones's property.

Upon examining the treated mint field, the investigator found no visible residue spots on the first seven rows closest to the housing complex. He did not observe residue spots on any of the properties in the complex. At approximately 50 feet into the treated mint field, the investigator observed a few residue spots on plants. At 100 feet into the treated mint field, residue spotting became quite evident.



map not to scale

SO, WHAT DID THE INVESTIGATOR CONCLUDE FROM THE EVIDENCE?

First, there was no clear-cut indication that wind caused drift toward the houses. In fact, residue samples seemed to indicate that *no* drift occurred: the levels were at or below what would be expected as background sulfur levels. Residue spots in the treated mint field also showed that the applicator left a buffer along the outer edges of the field. This observation consistently matched the GPS data plotted on a map of the application.

Secondly, the symptoms experienced by Mrs. Jones's daughter occurred prior to the application. It's true that the application created an odor problem, but no eyewitnesses close to the spraying actually saw the spray drift toward the homes. The investigator concluded that it was highly unlikely that pesticide drift occurred over the housing complex.

The complainants learned that the spraying on June 10 had not endangered residents' health and, therefore, no action was taken against the applicator. Case closed.

Online compliance guide available to public schools, day-care centers

A manual describing the requirements of a year-old law related to pesticide use in public schools and licensed day-care centers is available on the WSDA Web site. To access the 52-page manual that offers a question and answer section, go to *http://agr.wa.gov/PestFert/Pesticides/docs/ComplGuidePub075.pdf*.

The non-technical brochure is an effort to assist schools and day-care centers comply with requirements of the Washington Pesticide Application Act. The July 2002 additions to the law require that parents and staff be provided an annual notification of the facilities' pest control policies and methods as well as additional notification, if requested, of planned pesticide use. The law, designed to ensure that parents and other guardians are fully informed about school pesticide use, also contains posting and recordkeeping requirements.

School administrators, day-care providers and others with questions about this or any other pesticide law may call WSDA's toll-free Compliance Services phone line, (877) 301-4555.

Department Actions April 1, 2002 through March 31, 2003

Note: For a more detailed listing that includes the specific RCW and/or WAC violations, go to *http://agr.wa.gov/PestFert/Publications/Newsletter/2003.htm*

Equipment: 1 = Airblast, 2 = Ground boom, 3 = Ground (other), 4 = Fixed-wing air, 5 = Helicopter, 6 = Chemigation

License: CA = Commercial Applicator, CC = Commercial Consultant, CO = Commercial Operator, DM = Dealer Manager, PA = Private Applicator, PD = Pesticide Dealer, UL = Unlicensed

Person and Company	Lic.	Penalty $/days	Description	Equip.
Admeyer Orchards, East Wenatchee		$550	Employee drifted insecticide onto a residence exposing two children.	1
Kieth Amack, Richland	UL	$1,000	Commercial landscape applications without a license.	3
Darrell Bolyard, Darry-Air, Inc., Ephrata	CA	$350 + 5	Right-of-way applications injured trees and shrubs.	3
Jeff Brown, G.S. Long Co., Inc., Yakima	CC	$1,604 + 3	Recommendation inconsistent with label,	6
Cameron Calaway, Mattawa	PA, CA	$300 + 6	Applied contrary to label, and without a valid license.	2
Cameron Calaway, Agri-Specialties, Mattawa	CA	$350 + 3	Failed to submit application records as requested by the Department.	
Wayne Charwood, Turfpro, Prosser	CO	$1,100 + 16	Applied herbicides contrary to label, damaged shrubs,	3
Jim Davis, East Wenatchee	PA	$250 + 7	Drifted insecticide, human exposure.	1
Larry Denton, Marsh Aviation, Athena, Oregon	CA	$705 + 14	Drifted insecticide onto hay crop, a person and into a river.	4
John DeSoto, Home Check Inspection, Tacoma	CC	$750 + 16	WDO inspection without a license, inadequate WDO inspection/report.	N/A
John DeSoto, Home Check Inspection, Tacoma	CC	$300 + 3	Failed to submit WDO inspection records as requested by the Department.	
Major Dhaliwal, Omak	PA	$1,700 + 24	Employee drifted insecticide, human exposure, WPS posting & safety.	1
Leonard Ebe, Ferndale	PA	$2,000 + 36	Employee drifted insecticide, human exposure, no supervision, WPS safety.	2
Fred Ellis, Paratex American, Aberdeen	CA	$0 + 21	Inadequate WDO inspection/report.	N/A
Timothy Evans, Yakima	PA	$450 + 7	Employee drifted insecticide onto county road crew.	1
Robert Flynn, Shamrock Home Inspection, Yelm	CC	$1,100 + 6	Inadequate WDO inspection and report on house in Hoodsport.	N/A
David Galdeau, Olympia		$500	Sprayed herbicide across property line damaging neighbor's landscape	3
Wayne Gardner, Flight Level Zero, Othello	CA	$3,700 + 3	Two drift incidents: Human exposure to insecticide, crop damage from herbicide	4
David Graesch, Richland	PA	$7,200 + 0	Multiple human exposures resulted from drift of a soil fumigant.	6
Joe C. Grentz, Jr., Monitor	PA	$0 + 9	Drifted insecticide onto residential property.	1
Joe C. Grentz, Sr, Monitor	PA	$175 + 5	Alleged insecticide drift onto car denied by Grentz, Sr., settlement reached.	1
GS Long Co., Inc., Yakima	PD	$1,099 + 0	Human exposure from unsecured pesticide load that spilled onto freeway.	N/A
Gerald Husband, P.E.S.T., Quincy	CA	$150 + 6	Failed to submit application records as requested by the Department, and sprayed restricted-use herbicides at times and temperatures prohibited by the rules.	2

Bryan Isner, Alpha Ecological Pest Control	CO	$0 + 33	Unauthorized customer acquisition, applied plain water instead of pesticide.	3
Danny B. Jones, Waitsburg Helicopter Service, Waitsburg	CA	$600 + 3	Human exposure from insecticide drift onto residence	5
Willis Maxson, Eastern WA Spraying Service, Eltopia	CA	$917 + 3	Human exposure from fungicide drift onto passing vehicle.	4
Patrick Murphy, Evergreen Extras, Chehalis	CA	$200 + 0	Failed to maintain adequate records and submit them to the Department	N/A
Mike Nolan, Trees Inc., an Oregon firm	CO	$1450 + 10	Supervised employee drifted herbicide, exceeded label rate, damaged pears.	3
Charles Patterson, Design Outdoors, Wenatchee	UL	$600	Commercial landscape applications without a license.	
Robert Phinney, Dayton	PA	$450 + 7	Applied herbicide to crop not on the label, damaged Timothy hay.	2
Harold Pleasant, Prosser	PA	$575 + 0	Insecticide application by unlicensed employees drifted onto residence.	1
Daniel Reed, A & A Pest Control, Portland	CA	$0 + 6	Falsely reported house infested with powder post beetles.	N/A
Santiago Rodriguez, Oroville	PA	$550 + 9	Human exposure from insecticide drift onto residence.	1
Dwight Ropp, Ropp's Spraying Service, Pasco	CA	$1650 + 27	Drifted insecticide exposing children in school bus.	4
David Rothwell, Rothwell Inspection Service, Renton	CC	$500 + 3	Inadequate and false WDO inspection on house in Everett.	N/A
Gary Schonert, Castle Rock	UL	$250 + 0	Herbicide applied across property line, damaged neighbor's plants.	3
Martin Shaw, The Crop Duster, Inc., Ephrata	CA	$550 + 9	Drift of fungicide exposed workers on county road crew.	4
John R. Smith, Paratex Amer. Pest Management, Aberdeen	CA	$0 + 4	Inadequate and false WDO inspection on house in Aberdeen.	N/A
Monte Spence, Windflow Fertilizers, Inc., Mattawa	CA, DM	$0 + 24	Inadequate records, sales of RUPs to unlicensed applicators.	N/A
Squaw Creek Orchards, Pateros		$1,100 + 0	Unsecured pesticides left unattended, in close proximity, accessible to children.	N/A
David Sutherland, Col. Co. Farm Bureau, Inc., Dayton	CC	$450 + 7	Recommendation inconsistent with label, aiding and abetting.	N/A
Derek Tall, Absolute Pest Control, Gig Harbor	CA	Revocation	Applied/inspections without license, failed to submit and improper records.	
Jose Tapia, East Wenatchee	PA	$350 + 5	Insecticide drifted onto residence and 2 children.	1
Jorn Tronstad, Valley Air Service, Sunnyside	CA	$2200 + 5	Two insecticide drift incidents involving human and/or animal exposure.	4
TruGreen Chemlawn, Puyallup Branch	CA	$900 + 0	Insecticide mix contaminated with herbicide damaged landscapes.	3
Phillip Williams, Premier Pest Control, Tacoma	UL	Court Injunction	Commercial pesticide applications and WDO inspections without a license	3
James Wilson, World Inspection Network, Renton	CC	$600 + 0	Failed to provide WDO inspection records when requested by WSDA.	N/A
John Wise, Okanogan County	PA	$450 + 7	Drifted insecticide onto neighbor's certified organic pears.	1
Paul Wizner, Marsh Aviation, Athena, Oregon	CO	$705 + 10	Drifted insecticide onto a hay crop, a person and into a river.	4
Gregory Zacher, Chelan County	PA	$600 + 10	Human exposure from insecticide drift by unlicensed employee.	1
Kirk Zirker, Windflow Fertilizers, Inc., Mattawa	CO	$600 + 12	Applied contrary to label, RUPs at excessive pressure, inadequate records.	2

Vigilant farmers can help prevent BSE in U.S.

On May 20, 2003, Canadian Officials announced confirmation of a case of Bovine Spongiform Encephalopathy (BSE) in what appears to be a native born Black Angus cow. The investigation is ongoing and available information is updated daily. Imports into the United States of products of animal origin, except milk and milk products, were stopped as of May 20th.

In all 23 countries around the world are contending with BSE in native-born cattle. Scientists believe cattle are infected with mad cow disease when they eat feed contaminated with protein from animals with BSE.

In Washington, as in other states, the farmer plays a critical role in preventing what some day may be the first case of BSE in this country. Feed mills and others must do their part to produce ruminant feed that is free of prohibited mammalian protein. But, ultimately, the farmer is responsible for ensuring that cattle do not consume feed with prohibited material. It's possible for farmers who raise ruminants – cattle, and also buffalo, sheep, and goats – to take steps to prevent the disease. Namely, a farmer should not feed ruminants any feed products that contain pet food or other non-ruminant feed (poultry, hog, horse, etc.), as they may contain prohibited material.

A farmer should be knowledgeable of feed ingredients to better ensure that prohibited products are not fed to ruminants. Read labels carefully for the BSE warning statement: "Do not feed to cattle or other ruminants." And keep copies of purchase invoices and labels for all feeds with animal proteins for at least one year. The feeding procedures should be analyzed to prevent the possible cross-contamination of ruminant feed with non-ruminant feed that contains prohibited protein.

Since 1990, the U.S. Department of Agriculture has tested more than 36,000 brain tissue samples from animals at high risk for BSE. None have tested positive for disease in the U.S. If a single case of "mad cow" disease did occur in the U.S. – be it on a small farm or a commercial operation – the economic consequences would be devastating. Therefore, it is important that farmers remain vigilant, and educate employees, calf buyers and others about keeping animals away from feed with prohibited mammalian protein.

For more information on BSE, please visit the following Web site, *http:/agr.wa.gov/FoodAnimal/AnimalFeed/BSE.htm* or contact Ali Kashani at *akashani@agr.wa.gov*, (360) 902-2028. Information on BSE in Spanish is also available upon request.

BSE education and outreach efforts wrap up

In June 2001, Neil Lanning was hired to design and carry out a two-year outreach project on Bovine Spongiform Encephalopathy (BSE) prevention. In two years' time, Lanning made 29 in-person presentations, and set-up 18 displays at fairs, trade shows, conventions, and association meetings. He also visited farms in the majority of Washington counties.

Another major part of the project has been the development of several publications related to BSE prevention. These publications can be found on the Internet, *http://agr.wa.gor/FoodAnimal/AnimalFeed/BSE.htm*.

The project has come to a close due to budget constraints. However, this does not mean the work associated with BSE prevention is finished. Inspections and education will continue at feed mills, retail stores, transload facilities, and salvage feed operations.

As WSDA's Dr. Ali Kashani puts it: "BSE prevention remains a high priority for our program."

Revised feed labeling rules proposed

Rules relating to commercial feeds for livestock, poultry, fish, pets and specialty pet food are being revised, updated and divided into two chapters. The most signifigicant changes involve additional guarantees required on feed labels. The proposed revisions require listing of (1) additional nutrient guarantees; and (2) the species, age, size, or production stage of the animal the feed is intended for. Feed must be nutritionally suitable for the animals the product is labeled for. Ultimately, the new information being required under the proposed rules will allow a purchaser to better evaluate feed products.

"The proposed rules should go a long way to ensure feed labeling in Washington is consistent with model regulations published by the Association of American Feed Control Officials and adopted by several states," said Dr. Ali Kashani, WSDA Feed and Fertilizer Compliance Program Coordinator. "The revised rules should be easier for the regulated community to understand and follow."

To receive a draft copy of the proposed rules, please contact Debbie Tejeda, (360) 902-2025, or by e-mail, *dtejeda@agr.wa.gov*.

Learn more about thermal inversions

Some pesticide labels prohibit applications during inversions. In addition, Washington has state rules that prohibit applications of restricted use herbicides during such weather conditions. These restrictions are in place due to the potential for pesticide drift from applications made during thermal inversions.

How do you know when an inversion exists? Here's some information that will help you understand inversions and how to recognize one when you see or "sense" it.

WHAT IS AN INVERSION?

An inversion exists when a layer of cool air is trapped under a layer of warm air. During an inversion, temperatures above the ground increase steadily with height until a boundary layer (or ceiling) is reached. Applications made into this stable layer below the ceiling are conducive to the long distance drift of fine spray droplets – 150 micron or less.

WHAT CAUSES INVERSIONS?

Inversions have various causes. Nocturnal inversions (also thermal in nature) occur when the sun goes down and the soil surface begins losing heat, cooling the air close to the ground. Nocturnal inversions dissipate as the sun rises and heats the soil surface. The earth's surface heats at different rates, thereby causing the inversion layer to gradually become less stable, and eventually break down. There can be multiple inversion layers at varying altitudes. However, it is an inversion of the type that occurs closest to the earth's surface that influences spray drift the most. The same conditions that cause nocturnal inversions can cause thermal inversions during the day.

WHEN DO INVERSIONS OCCUR IN WASHINGTON?

Weather data from Washington State University offers insights into the frequency, timing, and strength of inversions and can help applicators plan safe and legal pesticide applications.

WSDA recently examined the frequency, timing, and intensity of inversions occurring from March through October in both 2001 and 2002 using data collected at the 14 WSU Public Agricultural Weather System (PAWS) stations. Stations are located throughout central Washington.

The data showed that inversions:

- can occur on a daily basis
- began earlier and lasted longer in March and October compared to April through September
- usually settle in by sunset
- in general, don't dissipate for up to two hours after sunrise
- occasionally lasted all day, even during the summer
- vary in strength

WHAT DETERMINES THE STRENGTH OF AN INVERSION?

Inversion strength is proportional to rate of temperature change with altitude. The higher the rate of change, the stronger the inversion and the closer the inversion ceiling is to the earth's surface. Inversion strength is also greater at low wind speeds (up to 3 mph). However, at some PAWS stations, strong inversions (temperature differences of 5 or more degrees) existed at winds speeds greater than 5 mph. Fortunately, strong inversions were infrequent at the PAWS stations. Weak or moderate strength inversions accounted for 77 percent of all inversions in 2001 and 2002.

Pollutant concentrations are higher in strong inversions compared to weak inversions. The take-home message for pesticide applicators – one of the worst times to apply a pesticide is during a strong inversion.

HOW CAN I RECOGNIZE AN INVERSION?

The behavior of smoke columns can be a good indication of inversion conditions. If the smoke rises and disperses with no observed ceiling, then inversion conditions probably don't exist. If the smoke rises and seems to reach a ceiling before dispersing in a lateral direction, then an inversion probably exists.

Atmospheric haze close to the earth's surface is another good indicator that a temperature inversion exists. Hazes are often seen at sunrise and dusk. Radiation fog – fog close to the earth's surface – usually is seen over wet soil, wetlands, or surface water and indicates an inversion.

Another option for detecting inversions is remote temperature sensors (less than $100) placed at different elevations at the application site. The sensors only need to be separated by 10 or more feet to detect the presence of an inversion. The greater the separation the more sensitive the detection ability. The sensors should be protected from the sun, and naturally or mechanically aspirated. With some weather stations, the remote transmitting sensors can be located up to 300 feet away from the receiver. The receiving sensor may be placed in a convenient location, such as near an alarm clock on a bedside table.

Where can I get more information about inversions?

For a listing of inversion-related resources, go to our *PesticideNotes* Extra! section at *http://agr.wa.gov/PestFert/Publications/Newsletter/2003.htm*.

Resolving complaint cases quickly helps deter future violations

In 2002, WSDA investigated 253 complaints involving pesticide use, sales and distribution, pesticide licensing, and inspections for wood-destroying organisms. Of that total, 153 people received an enforcement action that, in some instances, included a fine or license suspension.

"Our violation data appears to be more pronounced because we're turning around cases so much quicker," explained Cliff Weed, manager of WSDA's Compliance Services.

Table 1 shows total number of complaints and violations in the past five years. Violations result in four enforcement actions: Verbal warnings, advisory letters, notices of corrections (NOCs) or notices of intent (NOIs).

Taking swift action against violators is one of the many goals in Director Loveland's performance agreement with Gov. Gary Locke. One part of that agreement requires that 75 percent of cases be closed within 120 days; 100 percent of the cases must be completed by the end of 180 days.

"We are very pleased with this improvement," Weed said. "It allows enforcement action to serve its purpose of being a deterrent to future violations."

Program staff is required to respond to cases of human exposure within one business day of receiving a complaint. In 2002, WSDA responded to all human exposure complaints within a 24-hour time frame. The agency also met its target goal of responding to other types of cases within two working days.

For the three-year period, 2000 to 2002, Yakima County received the highest number of complaints at 82 followed by Spokane County (59) and Grant County (55). Wahkiakum County earned the distinction of having no complaints during this period. Table 2 provides a listing of the 10 counties with the highest number of complaints in this three-year interval.

Table 3 shows the type of activity that yielded complaints and resulted in violations from 1998 to 2002. For example, in 2002, WSDA administered actions that in 30 instances involved an activity related to the residential use of a pesticide.

Table 1. WSDA Complaints and Violations

Year	Total Complaints	Violations
1998	204	116 (57%)
1999	192	101 (53%)
2000	200	118 (59%)
2001	253	172 (68%)
2002	253	170 (67%)

The table shows total number of complaints and violations in the past five years. Violations result in four enforcement actions: Verbal warnings, advisory letters, notices of corrections (NOCs) or notices of intent (NOIs).

Table 2. Complaints by County, 2000-2002

County	2000	2001	2002	Total
Yakima	26	33	23	**82**
Spokane	11	20	28	**59**
Grant	21	20	14	**55**
King	8	21	24	**53**
Pierce	17	12	16	**45**
Benton	14	17	8	**39**
Chelan	12	8	16	**36**
Thurston	5	10	16	**31**
Douglas	9	8	10	**27**
Clark	11	5	8	**24**

Table 3. WSDA Violations by Type of Activity 1998-2002

Activity	1998	1999	2000	2001	2002
Agricultural	54	50	40	43	42
Commercial/Industrial	22	19	6	5	20
PCO/WDO*	8	11	17	26	22
Residential (non-commercial)	7	10	14	22	30
Right-of-Way	12	1	27	6	1
Other (licensing, record keeping, etc.)	13	10	14	70	55
Total Violations	116	101	118	172	170

* PCO/WDO = violations related to inspections or treatments for wood-destroying organisms

Table 4. Enforcement Actions Completed, 1998-2002

	1998	1999	2000	2001	2002
Notices of Correction Issued	73	26	160	112	101
Notices of Intent issued:					
Number of Violators	9	11	17	18	52
License Suspension (days)	94	104	134	206	1,479
Civil Fines Collected	$10,310	$13,000	$14,678	$13,150	$51,125

ENFORCEMENT ACTIONS

WSDA can take a range of actions against those who violate pesticide laws. These include verbal warnings, advisory letters, notices of correction, and notices of intent. The only formal action is the notice of intent. This states the department's intent to assess a civil penalty and/or to suspend, deny or revoke the alleged violator's license.

Under the penalty matrix, the maximum penalty WSDA may assign for a pesticide violation is $7,500 per activity and/or 90-days license suspension or license denial or revocation. The typical penalty for a non-serious, first-time violation is $200 to $500, and a license suspension of two to six days. However, a first-time violation would, in most cases, result in a notice of correction and not advance to the civil penalty stage unless a repeat violation occurred.

The typical penalty for a first-time human exposure violation is $350 to $550 and a license suspension of five to nine days. However, a review of past cases shows that multiple violations and/or aggravating circumstances have resulted in an average fine of $1,000. In first-time human exposure cases, WSDA may proceed directly to a civil penalty without first issuing a notice of correction. The agency may also refer appropriate cases to EPA for criminal prosecution or civil action.

When compared to previous years, the total violations, suspensions and civil penalties in 2002 appear much higher. The variances are inflated due to the following factors:

- Numerous backlogged cases (from earlier years) were completed in 2002.
- The revised penalty matrix rules provide for higher civil fines and license suspensions. The penalty matrix rules, effective January 12, 2001, provided

for modest increases in civil fines and license suspensions at the first level of violation and substantive increases at subsequent levels. As a result, penalties administered for 2001 and 2002 cases reflect slightly higher levels than in years past.

- Several offenders received a higher penalty for repeat violations of a similar nature.

"When we take swift action against violators we not only meet our performance agreement with the governor, but more importantly, we do a better job of safeguarding the public," Weed said.

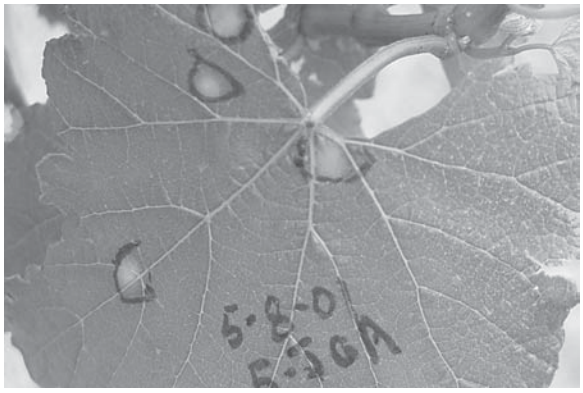
"Leaf position dating" benefits drift research

To grape growers, the most important element in a pesticide drift investigation is determining the date the exposure occurred. What many growers do not realize is that exposure occurs long before any observable symptoms appear in the vineyard.

WSDA/WSU-FEQL (Washington State Department of Agriculture/ Washington State University- Food and Environmental Quality Laboratory) research shows that herbicide exposure attacks newly emerged soft tissue leaves that have not, yet, formed a cutin. (Cutin is a waxy covering on the leaf that repels water.) Leaves are susceptible to herbicides from the time they start to unfold and expand until the cutin has formed. This time frame is dependent upon temperature conditions. After the cutin has formed, leaves will not generally absorb herbicides deposited by atmospheric deposition, since the herbicide solution will not normally penetrate the cutin. Exceptions are the desiccants: i.e. paraquat, diquat, etc. There is a lag time between the exposure and the appearance of herbicide symptoms. The change in venation of the leaf from hormone-type herbicides appears soon after exposure. The diffuse yellow spots of sulfonyl ureas generally appear 10 to 15 days after exposure. Symptoms also will indicate if the exposure is from a herbicide drift or atmospheric deposition. That's true because symptoms caused from the same chemical will appear different according to how the chemical was deposited.

Leaf position dating (recording when a leaf unfolds and expands) requires weekly observation of the same shoot on the grapevine. Forms for conducting leaf position dating are available at the Washington Association of Wine Grape Growers Web site *http://www.wawgg.org* under link titled "drift monitoring." You may also contact your regional WSDA office for assistance. WSU-FEQL is currently conducting research in the Walla Walla Valley. Growers may submit their observation report forms to the project by contacting Dr. Vincent Hebert, (509) 372-7393.

Grape cluster showing shot berry, caused by exposure to phenoxy-type herbicides during bloom.



Diffuse yellow spots caused by atmospheric deposition of (SU) herbicide. Exposure occurred as the leaf was unfolding before the cutin was formed. It may take 10 days for the spot to appear. Spots are circled and dated because the leaf metabolizes the herbicide and the spot fades.

Vein clearing, puckering (causing leaf veins to swell), and venation (veins extend past the normal leaf margin) are symptoms of phenoxy-type herbicides, 2,4-D.

WSDA Web site address has changed

On June 9, 2003 WSDA's Web site address officially changed to *http://agr.wa.gov*. The address changed because the site was moved to a new server that will provide quicker, more reliable service.

The move to the new server also makes our Web site more user-friendly. No longer will our page addresses (or URLs) be case sensitive. Users can type URLs in capital letters, lower case, or a combination of the two and still reach the pages they want.

agr.wa.gov

Other recent changes already have made the site compatible with more Web browsers. The new server opens up the opportunity for adding additional features, such as a search function, to our site. Please update any links, bookmarks or references to our site.

Clopyralid levels in compost drops by 88 percent

WSDA samples compost for herbicide residue for second year

The Washington State Department of Agriculture (WSDA) has completed a second year of sampling compost facilities for residues of clopyralid and picloram. The department is conducting ongoing analyses to evaluate the effectiveness of a year-old clopyralid rule that restricts the pesticide's use on turf and lawns. Pesticide management staff have compared 2002 levels of detected residue to 2001 levels, and found an overall 88 percent decrease of clopyralid in compost. Another chemical of concern is picloram, but no levels of this herbicide were detected in the 2002 samples submitted for residue analysis.

"Establishing a rule that restricts the use of this herbicide on turf and lawns appears to have greatly lowered detectable levels of clopyralid in compost," said WSDA's Cliff Weed.

In December 2002, staff collected and analyzed samples from 12 Washington facilities as compared to samples obtained from nine compost centers the year before. An average of all 34 samples collected in the second year contained 18.47 parts per billion (ppb) of clopyralid. In 2001, an average of all 49 samples collected contained 96.89 ppb. Clopyralid is a broadleaf herbicide that can cause irregular growth symptoms in some plants, such as tomatoes and beans. The herbicide is not considered hazardous to people and other mammals.

With respect to the 2002 samples, grass clippings appear to be the biggest contributor of clopyralid into the organic waste stream. Of all 12 compost centers surveyed by WSDA, Facility #5 East had the highest level of herbicide at 333 ppb. The year before, the same facility and same type feedstock contained 1,550 ppb clopyralid. It is the only location where grass clippings alone were sampled in both years. At all the other compost facilities, samples were taken from mixed yard waste: leaves, twigs, branches, shrubs, garden residues. It should be noted that Facility #5 East is located in a border town, and likely receives grass clippings from lawns outside the state and in communities where a clopyralid prohibition on turf did not exist at the time of sampling.

In addition to the analyses conducted by WSDA's Pesticide Management Division, one sample of compost from each of the 12 facilities was submitted to Washington State University Research Station at Puyallup. There, researchers conducted a greenhouse bioassay by growing peas into a 2:1 ration of compost mixed with peat-based potting mix. Peas grown in the contaminated samples of compost medium were compared to peas grown in clean potting mix. The results of this bioassay ranged from no negative plant growth symptoms (visible) to a "severe" cupping or curling of leaves and stems.

Andy Bary, WSU soil scientist who conducted the assays said, "All the samples submitted for bioassay contained clopyralid levels equal to the levels we've used in our greenhouse and field research; compost containing these levels of herbicide can be used safely to grow sensitive species of plants."

Speaking for Western Washington only, Bary added, "As long as homeowners thoroughly mix compost into the garden and do not exceed the maximum application rates for compost – one-inch thick for yearly applications and up to three inches thick for newly established beds – there is no concern."

WSDA plans to conduct this statewide compost sampling again in 2003. Surveys will take place in subsequent years to monitor levels of clopyralid and other herbicides should those levels become an ongoing concern.

About the sampling process

In 2002, WSDA sampled 12 compost facilities for clopyralid residues, compared to nine facilities sampled in 2001. The majority of the 2002 participants had been sampled in the previous year. To ensure the results of the analyses remained anonymous, facilities were assigned random numbers in both years. (For example, Facility #1 East-2002 is different from Facility #1 East-2001.) In comparing the data, keep in mind how averages were calculated. Only the positive detections of clopyralid are shown for the samples at each location. These were averaged for each facility, and then the all facilities were averaged together. In 2002, one Westside facility had no detectable level of clopyralid in any of the collected samples, thereby earning an average of *0*. That average, in turn, was calculated into the overall average.

WSDA Compost Sampling December 2002
Clopyralid Analysis Results, Anatek Lab (MDL 1 ppb)

Facility	# Samples	# positive	Results ppb	Average ppb
#1 east	3	2	20,11	15.5
#2 east	3	3	6,5,6	5.7
#3 east	5	4	23,29,22,18	23
#4 east	3	3	17,8,8	11
#5 east	5	5	15,333,20,13,11	78.4
#6 west	2	2	15,2	8.5
#7 west	2	1	11,	11
#8 west	2	2	12,7	9.5
#9 west	3	0	0,	0
#10 west	2	2	5,3	4
#11 west	2	2	6,1	3.5
#12 west	2	1	1	1
Totals	**34**	**27 (79%)**		**14.2**

WSDA Sampling October 2001 Results

Facility	# Samples	# positive	Results ppb	average ppb
#1 east	5	5	200,1550,11,56,477	458.8
#2 east	6	5	18,600,23,29,16	137.2
#3 east	6	3	11,20,66	32.3
#4 east	5	5	35,26,103,43,40	49.4
#5 west	5	2	62,46	54
#6 west	6	5	250,100,24,150,124	129.6
#7 west	3	3	124,33,86	81
#8 west	6	6	12,52,9,27,43,75	36.3
#9 west	7	2	182,25	103.5
Totals	**49**	**36 (73%)**		**120.2**

ppb = parts per billion MDL = minimum detection limit

California and Oregon follow Washington's lead in enacting clopyralid restrictions

With the goal of protecting the organic waste stream from pesticide contamination, Oregon and California have followed Washington by adopting rules that limit the use of turf products containing clopyralid. Similar to Washington's rule, the new restrictions in both states are limited to residential or other turf sites and do not affect the commercial agricultural uses of clopyralid.

On a nationwide basis, Dow AgroSciences is tackling the compost issue by modifying the new federal (section 3) label for Confront® Herbicide and by prohibiting the use of the product on residential lawns. A manufacturer who buys technical clopyralid material from Dow AgroSciences for the purpose of formulating their own product must modify their label to reflect the change.

Doing our part to protect salmon and trout

The WSDA Endangered Species Program is working to protect salmonids listed under the Endangered Species Act, and, at the same time, safeguard pesticide users from unnecessary regulatory actions.

For nearly a year, the Environmental Protection Agency (EPA) has been under a court mandate to determine the effects of pesticides on salmonids – Pacific salmon and trout. In July 2002, an appellate court found EPA in violation of its obligations under the Endangered Species Act. The court ordered the federal agency to determine the potential effects of 54 active ingredients, contained in pesticides, on salmonids. Since that time, WSDA has worked closely with EPA and the National Marine Fisheries Service in the development of the department's Endangered Species Program.

For more information about WSDA's Endangered Species Program, please see *http://www.wa.gov/agr/PestFert/EnvResources/EndangSpecies.htm* where a monthly newsletter is published and background related to endangered species may be found.

Are you Interested in learning how major environmental laws affect pesticide users?

Kirk Cook, WSDA's Water Quality Protection Manager, has authored an informative discussion of this compelling topic. To view or download the article, go to *Pesticide*NOTES Extra! section at *http://agr.wa.gov/PestFert/Publications/Newsletter/2003.htm*.

Dealers: Know when Commercial Applicator license is a must

On the surface, pesticide law is clear in terms of describing when a pesticide application requires a Commercial Applicator license. What is not as clear is how the law applies to pesticide dealers who offer technical help during complex chemigation applications.

The Commercial Applicator license is required when applying pesticides to the property of someone other than your employer. The law does not require that the person making the application be paid for his/her work.

Because chemigation applications are fairly complex, pesticide dealers often provide growers with technical expertise in calibrating equipment and performing applications. At what point does this assistance constitute a commercial application on the part of the dealer? Assuming they are licensed as a certified applicator, employees of pesticide dealers can provide assistance to growers, including turning equipment on and off, up through the completion of an initial calibration. After this point, any operating (turning on and off), monitoring or recalibration of the equipment would constitute a commercial application by the pesticide dealer. Once a license is required, the dealer must meet all the requirements of a commercial applicator, including maintaining pesticide application records and licensing application equipment.

There are a couple of other points to consider. Even if the dealer does not require a license as a commercial applicator, the individual can be held responsible for improper advice given to a grower-client. Additionally, if the application equipment (sprinkler system and/or injection equipment) is faulty or not in compliance with law, rule or pesticide label requirements, the dealer may be held partly or fully liable for any violations that occur.

If this subject is of intereset or concern to you, WSDA will be developing a fact sheet in the near future to elaborate on these licensing issues. It will be posted on WSDA's Web site at *http://agr.wa.gov/PestFert/ChemFert/default.htm*.

For further information, contact Tom Hoffmann, Technical Assistance Specialist, (509) 766-2574 or Byron Fitch, Chemigation Compliance Specialist, (509) 766-2575.

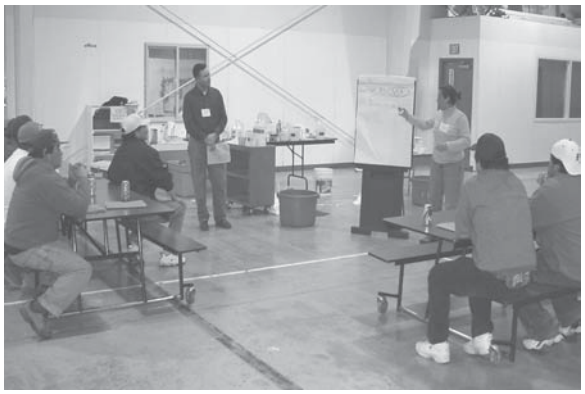
Train the Trainer: A new WSDA safety program

The WSDA's Pesticide Management Division has introduced a new and innovative pesticide safety training program called *Train the Trainer*. The program is specifically designed to help agricultural employers, managers and supervisors overcome difficulties meeting WPS compliance standards, and simultaneously bring efficient pesticide safety training to field workers and pesticide handlers as mandated by the Environmental Protection Agency (EPA).

In the past six months, WSDA conducted five Train the Trainer events in Skagit, Yakima and Grant counties. At last count, WSDA had successfully trained nearly 130 agricultural managers, supervisors and foremen.

TRAINING MAKES SENSE

After conducting several WPS inspections last year for the tree fruit industry in four Central Washington counties, the department found that field workers rarely receive pesticide safety training. What is more, the training offered to handlers often fails to meet the WPS training criteria. Growers expressed their concerns to WSDA having recognized the need for regular training sessions. Pesticide Management staff agreed with growers, and acted swiftly by developing the *Train the Trainer Program.*



The Train the Trainer program combines classroom , role-playing and hands-on activities.

BREAKING DOWN THE WORKSHOP

The workshop is an intensive and interactive course available to 30 participants at one time. The one-and-a-half day training offers a strong hands-on component. The training covers pesticide basics, methodology, training regulations and a step-by-step process for how to host such events.

During the first day, participants are divided into two smaller groups of 15 people each. Two trainers are assigned to two training modules each (see illustration on page 21). The four distinct modules run about 90 minutes each. There is no time for a participant to get bored. On Day 1, individuals stay engaged by moving from one curriculum-packed module to the next. Then, on Day 2, participants become the "trainer." Participants take part in a dry run exercise where they teach pesticide safety training before an audience.

COVERING A RANGE OF TOPICS

This training goes beyond the training scope of the WPS. It not only provides basic details about WPS training requirements, but it also provides valuable information to new trainers who want to avoid difficulties at an actual training event.

TRAINING IS A HOME RUN FOR ALL

Employers benefit when a qualified trainer conducts safety workshops. A trained employee is much less likely to have a workplace accident that could result in lost time from work, an increase in worker's compensation insurance rates, and possible legal actions.

Onsite training gives field workers and pesticide handlers a greater knowledge of potential risks associated with handling product or working in areas where spraying has occurred. Among other issues, participants will learn the following:

- How to read/understand pesticide labels
- WPS requirements
- Proper use and selection of Personal Protective Equipment (PPE)
- How to adequately clean protective and application equipment
- Avoid pesticide drift
- Proper disposal of pesticides and their containers
- How to properly and safely follow mixing and loading procedures
- The importance of having a qualified individual onsite to answer questions/ concerns

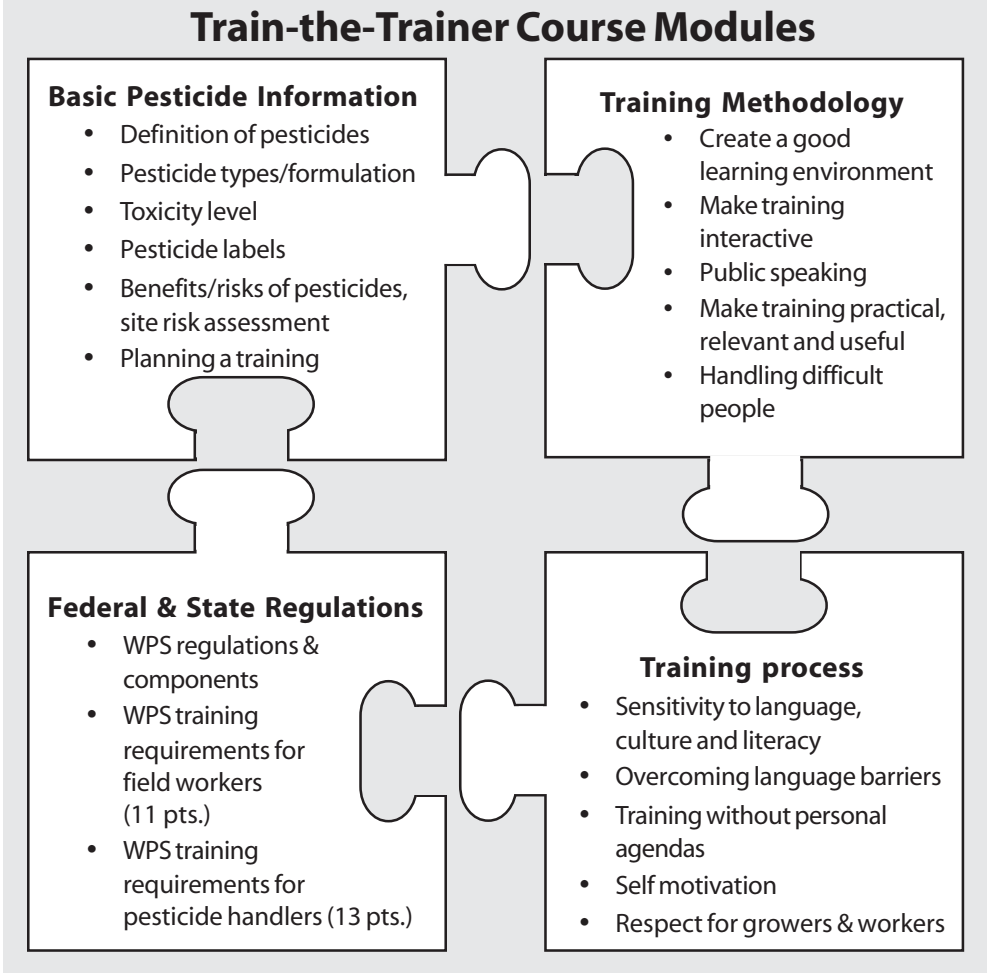
While the knowledge and skills in the above list are specifically geared to handlers, field workers also become steeped in the same information. In addition, field workers learn:

- When and in what form pesticides can be found at the workplace

- How to avoid pesticide exposures
- Where to find information about pesticide applications
- The meaning of posted signs
- What the restricted entry interval means
- How to avoid taking pesticides (residue) home

Pesticide safety training that takes place onsite has been a boon to employers, handlers and field workers alike. In order to ensure personal, family and community safety, all three players must fully grasp the potential risks associated with handling or working near pesticides. In the end, *Train the Trainer* is a home run for all.

For information, contact
Flor Tovar, (509) 662-0590
ftovar@agr.wa.gov



Heads up to Ag owners: No exemptions from WPS equipment requirements

Although agricultural owners and their immediate families are exempt from many of the requirements of the Worker Protection Standard (WPS), they are *not* exempt from wearing label-required personal protection equipment (PPE), including that required in the "Agricultural Use Requirements" section of the label. Agricultural owners are those who own, lease, or rent and who actively manage an agricultural establishment covered by the WPS.

These individuals must also comply with restricted entry intervals and all PPE requirements for early entry. Except in very limited, no-contact situations, they may not enter treated areas during the first four hours following a pesticide application. They must wait at least until either the inhalation exposure level on the product labeling has been reached or any WPS ventilation criteria have been met. If performing short-term (non-hand-labor) early entry tasks, they may not remain in a treated area under an REI for more than one hour in any 24-hour period. In addtion, they must follow any restrictions specified in any special exceptions or on the pesticide labeling.

A complete copy of Washington state's WPS, WAC 16-233, is available at *http://www.leg.wa.gov/wac/index.cfm? fuseaction=chapterdigest &chapter=16-233*. WACs 16-233-110 and 205 detail the exemptions for agricultural owners and their families. For further information, contact Compliance Services toll-free (877) 301-4555.

Growers fall out of compliance on label training

Recent Worker Protection Standard inspections by WSDA compliance staff have revealed a high level of non-compliance with label training requirements. Growers consistently fail to provide their handler employees with label-specific training prior to performing handling tasks: mixing, loading, or applying pesticides, repair of pesticide contaminated equipment, etc. Insufficient or no training may result in direct contact with pesticide residues and potential health problems to the handler and/or general public.

Specifically, the agricultural employer must inform handler employees — in a manner they understand — about labeling requirements on the safe handling of each pesticide used. At a minimum, this training should include:

- the signal word
- human hazard statements and precautions
- personal protective equipment requirements
- first aid instructions
- environmental precautions
- any additional precautions about the handling task to be performed.

Lastly, the employer must ensure that the handler has access to the label and has been trained in the safe and correct operation of equipment used to handle pesticides.

WSDA adopts new rules for assessing fertilizer penalties

A new rule governing how WSDA assesses civil penalties against persons and companies who violate the state's fertilizer law became effective in February. Although the department has had authority to issue civil penalties since 1987, program staff lacked a formal process by which to determine the appropriate penalty. The law allows the department to assess penalties of up to $7,500 per violation.

The new rule, developed with the assistance of an ad-hoc committee comprised of members of WSDA's Fertilizer Advisory Committee, was modeled after a 1993 pesticide rule. As with the pesticide rule, the backbone of the fertilizer penalty rule is the penalty assignment schedule, commonly referred to as the *penalty matrix* (see table on page 23).

Although very similar to its pesticide counterpart, the fertilizer penalty rule has two significant differences:

- First, there is no reference to license *suspensions* in the fertilizer rule as there is in the pesticide rule. The fertilizer law does not give the department authority to suspend a bulk fertilizer distribution license, only cancel or deny it.
- Second, the dollar amounts in assessing a fine are generally higher than the fines established in the pesticide penalty matrix. The fertilizer penalty matrix does not include license action for less serious offenses that would warrant suspensions. In lieu of a license suspension option, the fines were doubled from those found in the pesticide penalty matrix. This is consistent with penalties assessed against unlicensed individuals for violations of pesticide regulations.

The fertilizer penalty matrix will be used when it is necessary to assess civil penalties for violations of the fertilizer law and associated rules. This includes the fertilizer secondary and operational containment rules (WAC 16-201) and the fertigation rules (WAC 16-202-2001).

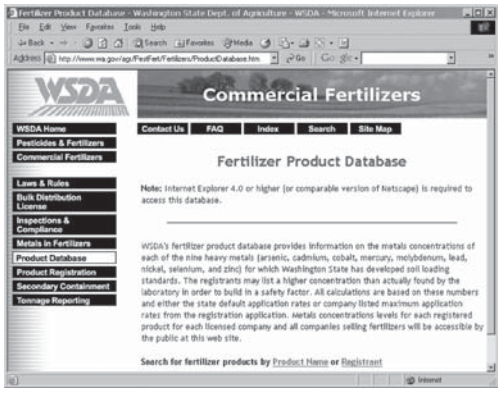
The full text of the fertilizer penalty rule can be found on the WSDA Web site, *http://agr.wa.gov/PestFert/Fertilizers/docs/16-200FertPenMatrix.pdf*.

Fertilizer "news" you can use

Database reports metal levels in commercial products

In 1998, WSDA established a fertilizer product database to help the public learn about the levels of metal in Washington's commercial fertilizers. Visitors from across the United States – and even overseas – now go to the *Metals in Fertilizers* Web page to get answers to their questions.

A majority of the queries focus on fertilizer toxicity and the product's potential harm to children and pets. The agency does not maintain this type of information or offer recommendations for fertilizer use. However, WSDA does *refer* consumers to manufacturers by listing phone numbers and addresses on its database. In addition, the department refers questioners to their local University Cooperative Extension or Master Gardeners program where knowledgeable volunteers answer questions about the rate of application of fertilizer, or the best fertilizer for a specific application.



All products listed in the database currently are registered for distribution in Washington. Finding out the parts per million (ppm) of a heavy metal reported for a product is as easy as clicking onto *http://agr.wa.gov* and selecting *Metals in Fertilizers* on the homepage. The database is set up to search by registered company name or product name. A curious consumer can learn the name, address, and telephone number for the registrant, product names, guaranteed nutritional analyses, as well as the reported levels of metals found in each product.

If a product appears on the WSDA database it has met the state standards for allowable levels of nine heavy metals. A particular brand earns a passing grade if WSDA calculates that its use will not add unacceptable levels of metals to the soil. Several other states have adopted metals standards since the Washington Fertilizer Regulatory Act of 1998. The Association of American Plant Food Control Officials is in the process of launching an Internet site that can be used for all states. The consumer will then be able to view state-by-state data about metals levels in commercial fertilizer from one Web site.

"Heavy Metal" History

When the potential presence of heavy metals in fertilizers became an issue in 1997, Washington responded by passing the Fertilizer Regulatory Act of 1998.

This act requires all commercial fertilizer registrants to test for and report the levels of metals in all fertilizer products.

Initially, WSDA considered the possibility of requiring registrants to print the levels of metals on product labels. This option seemed an undue burden on the registrants. Instead the WSDA Internet statement was born. Now fertilizer products include a statement that directs consumers to the *Metals in Fertilizer* Web page and its companion database. The Internet address appears on all fertilizer packaging.

Fertilizer Penalty Matrix

LEVEL OF VIOLATION	ADVERSE EFFECTS *NOT* PROBABLE			ADVERSE EFFECTS PROBABLE		
	Minimum	Median	Maximum	Minimum	Median	Maximum
FIRST	$400	$600	$1000	$700	$900	$1100
SECOND	$700	$1000	$2000	$1200	$2600	$4000 and/ or license denial or cancellation
THIRD	$1400	$2000	$4000	$1600 and/ or license denial or cancellation	$4800 and/ or license denial or cancellation	$7500 and/ or license denial or cancellation
FOURTH OR MORE	$1800 and/ or license denial or cancellation	$4000 and/ or license denial or cancellation	$6000 and/ or license denial or cancellation	$2000 and/ or license denial or cancellation	$7500 and/ or license denial or cancellation	$7500 and/ or license denial or cancellation

Ag's Pesticide Advisory Board reaches out

by Willis Goodwin, Chairman

Since its establishment in 1961, the Pesticide Advisory Board (PAB) has served Washington state by advising the WSDA director on a myriad of issues related to new laws, enforcement, education and budget. Among other roles, the board encourages open communication between the user community, interested parties, WSDA staff and PAB members.

The Washington State Legislature established the PAB in RCW 17.21.250. In 2001, a charter was adopted that clearly defined board activities. The Pesticide Advisory Board Charter states the board's mission is to advise and provide the WSDA director with recommendations on issues related to the registration, distribution, use and disposal of pesticides in the state.

In accomplishing this mission, PAB is asked to:

1) Review, advise and provide timely input to the agency director regarding any or all of the following issues:
   - Any new or proposed changes to the Washington Administrative Code, Revised Code of Washington, legislation or policies
   - Any compliance, enforcement, education or registration issues
   - Any proposed significant change to department compliance, enforcement or registration policies or programs
   - Any proposed significant program and/or budget requests or changes
2) Bring to the agency director any topic of concern; convey proposals related to the use, distribution, and disposal of pesticides, including pesticide education issues.
3) Conduct an efficient board process consisting of well-run meetings and comprehensive committee work.

A complete list of current PAB members and their areas of specialty can be found at the Pesticide Notes Extra! Web site at *http://agr.wa.gov/PestFert/Publications/Newsletter/2003.htm*. Feel free to contact any member if you have general questions; concerns specific to a particular area should be directed to the most appropriate member or to the board chairman. If your issue is one with policy implications, it may either be brought to an existing ad-hoc committee or to the full board for consideration and appropriate disposition.

The board meets on a quarterly basis or more often as needed. Meetings are open to the public and interested parties are encouraged to attend. For information on upcoming meeting schedules or meeting minutes, contact the WSDA (360) 902-2012.

Fumigating grains the safe way

Sometimes it's necessary for growers to use fumigants on grains and other crops in order to avoid the damage caused by feeding insects during storage, and the resulting economic losses. The difficulty comes in learning how to apply fumigants in a safe and effective manner.

Applying fumigants with attention to safety is a matter of becoming label savvy, and scrupulously following directions. Fumigating grain is a particularly hazardous procedure that requires certified applicators to be proficient in all aspects of treatment. Grain fumigants include *carbon dioxide, methyl bromide* (Brom O Gas), *magnesium phosphide* (Fumi-Cell, Magtoxin) and the more commonly used *aluminum phosphide* (Fumitoxin, Phostoxin, Gastoxin, Phosfume, etc.).

When exposed to any type of moisture, aluminum phosphide tablets or pellets will produce highly toxic *phosphine gas*, which is also highly explosive. Phosphine gas can be recognized by a strong garlic-like or "fishy" odor. It is generated when moisture reacts with the pesticide tablets. These tablets are impregnated with paraffin - a way that provides enough time for its safe placement. However, grain must not be fumigated if the grain's moisture content is above 15 percent, nor when grain temperature falls below 40º F. At a higher humidity, phosphine gas can be evolved too fast, and at a rapid enough rate to prevent proper diffusion: The risk here is one of spontaneous ignition if the concentration of gas in the air exceeds 1 percent.

Aluminum phosphide tablets contain materials that release carbon dioxide and ammonia, thus preventing spontaneous ignition as long as an applicator uses the tablets properly. In addition, phosphine gas violently reacts with acids and with compounds containing *fluorine*, *bromine*, *chlorine*, or *iodine*. When grain temperature falls below 40º F, the chemical reaction is retarded enough to prevent proper insect control. Then, if the treated grain is subsequently warmed, a sudden production of gas can create a highly toxic environment. When the ambient temperature outside the treated area is significantly different than the temperature within the treated grain, the grain mass may be ineffectively exposed to gas. In other words, the gas has moved either up or down within the ambient atmosphere of the treated grain bins. That reality in turn, depends on the ambient temperature gradient.

AVOIDING HEALTH RISKS ASSOCIATED WITH FUMIGANTS

Phosphine gas can be minimally absorbed through the skin, but it is most damaging to people if inhaled or ingested. Exposure symptoms include coughing, chest tightness or pressure, ringing in the ears, headache, nausea, double vision, speech and motor disruption, vomiting and diarrhea. Prolonged inhalation exposure or ingestion can produce phosphoric acid in the body, and even cause severe disability, or worse, death.

To prevent adverse health effects, applicators must become experts in the application of grain fumigants. In addition to possessing an in-depth knowledge of product labels, applicators and grain handlers must wear respiratory protection devices when fumigant concentrations exceed 0.3 ppm (parts per million) or when concentrations are unknown.

By law, applicators must follow these specific procedures:

- Placard or post warnings at all entrances to fumigated areas. Signs must include the signal word "DANGER/PELIGRO" as well as the skull and crossbones symbol in red.
- Incorporate warning statements on all signs that read:
  "Area and/or commodity under fumigation, DO NOT ENTER/NO ENTRE"; This sign may only be removed after the commodity is completely aerated (contains 0.3 ppm or less of hydrogen phosphide gas)…"
- Transfer a commodity to a new site, if the

Insect damage: Highly detrimental to commodities

Insect damage to grains and other crops reduces the weight, nutritional value, and germination potential of the affected commodities.

In addition, insect activity also leads to sanitary contamination, offensive odors, infestations of secondary mold, and other problems that reduce the processing quality of grains.

The presence of insects in a transported commodity may also make it unfit for domestic delivery or export shipment.

Thus, growers must - and do - rely on three chief ways to treat commodities and prevent or eliminate harmful insects: sanitation procedures, top-dressed insecticides, and fumigants.

area in which it's stored is insufficiently aerated. The new site must also be placarded, and workers must not be exposed to more than 0.3 ppm phosphine.
- Indicate the date and time fumigation begins and is expected to end.
- Identify the fumigant being used and the name, address and telephone number of the applicator.
- Maintain all application records with fully completed information. Records should be readily available for any necessary inspection.

Fumigating railroad cars and semi-trailer rigs poses another challenge. Placards must be placed on both sides of the car near all ladders, doors, and hatches. Placards may not be removed until the car is completely aerated, a status determined by using phosphine detection equipment. Signs may be taken down when gas levels reach 0.3 ppm or less. And, if a greater amount of gas is detected at the time the car leaves in transit, the placards must remain with the car.

Over-road vehicles, such as semi-trailers, cannot be sent in transit while being fumigated – not under any circumstances. The Federal Drug Administration (FDA) has established tolerances for hydrogen phosphide residues at 0.1 ppm for animal feeds and 0.001 ppm for finished foods. If fumigated, these products must be aerated for 48 hours *before* being distributed and sold to the consumer.

A helpful USDA handbook is available on-line from the Federal Grain Inspection Service at *www.usda.gov/gipsa/reference-library/handbooks/fumigation/fumhb.pdf*.

If you have questions on the steps for effective and safe application of a particular grain fumigant, contact the pesticide manufacturer. Label interpretation questions can be directed to Registration Services, toll free (877) 301-4555.

Getting the most out of recertification courses

HOW DO YOU FIND OUT ABOUT CURRENT COURSES?
- Go to *http://agr.wa.gov/pestfert/licensinged/listapprovedrecertclasses.htm* for a listing of open courses.
- Check information on courses sponsored by Washington State University's (WSU) Pesticide Education Program at *http://pep.wsu.edu*.
- Check with associations you belong to, your employer, pesticide dealers and your local county extension agent.
- Contact Pesticide Licensing at *license@agr.wa.gov* or toll-free at (877) 301-4555.

HOW CAN YOU ENHANCE YOUR OPPORTUNITY TO LEARN?
- Arrive to the meeting and return from all breaks on time.
- Bring paper and a pen to write down information you want to remember.
- Sit near the front of the classroom.
- Ask questions and share your experiences by making comments.

WHAT SHOULD YOU DO DURING A COURSE?
- Write down information from the presentations for future reference.
- Ask questions during the Q&A session.
- Collect the handouts and keep them with your notes.
- Jot down the speakers' contact information, including Web site address, in case you need additional information at a later date.

WHAT SHOULD YOU NOT DO DURING A COURSE?
- Be disrespectful to the speaker by not paying attention. Reading newspapers, sleeping and talking are simply rude behaviors, and grounds for having your credits denied. If the content is boring or too elementary to keep your attention, let the sponsor know so he or she can improve the course next time.
- Don't let your cell phone or pager ring. Turn them off before entering the room.

WHAT SHOULD YOU DO AT THE END OF A COURSE?
- If a WSDA *Recertification Attendance Roster* is being used, complete all of the requested information. Be sure to print your name as it appears on your pesticide license card and to include your license number.
- If a WSDA certificate is used, be sure to have each session you attend validated with a WSDA stamp. After the last session you attend, give the certificate to the monitor or mail the original to WSDA.
- Keep track of courses that you have attended by listing the course date, number, name and location on the course record provided on the back of your license card.
- Give feedback to the sponsor.
  - Did they provide an evaluation form for you to fill out and turn in?
  - If so, did you take the time to provide your evaluation? Let the sponsor know what you learned or had problems understanding.
  - If you were dissatisfied with the class, don't wait too long to inform the sponsor. If you put it off, you probably won't do it. The sponsor will then miss out on valuable information that could help him/her improve next year's class.
  - Become a speaker. Sponsors are always in need of help from people with training skills and experience. Knowledgeable licensees are often the best trainers.

Canada modifies restrictions on Washington imported grass hay and straw

by Tom Wessels, WSDA

The Canadian Food Inspection Agency (CFIA) recently revised importation restrictions on hay, and straw shipped into Canada from Washington counties infested with the cereal leaf beetle (CLB). The original Sept. 1, 2002 restriction regulated all non-processed hay and straw, including alfalfa, even though it is not a host material to the CLB. On March 15, 2003, Canada exempted hay or straw of non-host species – alfalfa included – providing the crop contains less than 5 percent host species material (see below).

The cereal leaf beetle, also known by its scientific name as *Oulema melanopu,* is a bluish-black pest with rust-red legs and found in 14 Washington counties. When larvae hatch in spring, they attack host vegetation, reducing yields by eating the green leaf tissue of cereal crops and grasses. Specifically, the CLB attacks the following vegetation:

- Cereals: wheat, durum wheat, triticale, barley, oats and rye (Note: These commodities also regulated for dwarf bunt and flag smut)
- Sorghum and Sudan grass, rice, millet
- Forage grasses: bluegrass, bromegrass, canary grass, fescues, orchard grass, bent grass, ryegrass, timothy, wheatgrass and wild rye
- Legume-grass mixes consisting of 5 percent or greater of regulated host species

Under its Cereal Leaf Beetle directive, Canada *does not* regulate the following materials:

- Hay or straw composed of *greater than 95%* non-host species, namely alfalfa, clover and sweet clover
- Pelletized or cubed hay or straw
- Silage including balage and haylage
- Small quantities of hay or straw carried in vehicles for in-transit use by animals.

Washington shippers exporting these types of vegetation are not required to obtain an import permit or phytosanitary certificate. However, CFIA will issue import permits to Canadian residents who import regulated material that is used to produce mushroom compost.

Shippers who ship hay and straw – composed of 95 percent and greater host vegetation – to protected areas of Canada from Washington must have either a CFIA import permit or a phytosanitary certificate issued by WSDA. Protected areas of Canada include all of British Columbia, except the Regional Districts of East Kootenay and Central Kootenay, Alberta, Saskatchewan, Manitoba, Ontario west of Wawa or North of Highway 101, Northwest Territories, Nunavut and Yukon Territories.

WSDA will issue phytosanitary certificates for regulated material with one of the following additional declarations and/or treatments:

- "The material originated from areas free from *Oulema melanopus* on the basis of official surveys."
- "The material was baled at least 90 days prior to shipping and was stored in a manner to keep it dry since baling."
- "The material was compressed at a pressure equal to or greater than 105 kg/cm^3"
- Acceptable pesticide treatment for regulated material, such as phosphine gas (aluminum phosphide or magnesium phosphide), used in accordance with the manufacturer's recommendations. The hay or straw must be safeguarded after treatment to prevent infestation with CLB.

To obtain a phytosanitary certificate, shippers may contact any of the federal or state offices below. USDA-APHIS-PPQ officers or the WSDA inspector in Ellensburg must certify fumigations.

Did you know?

- The cereal leaf beetle is in 14 Washington counties: Adams, Asotin, Clark, Columbia, Ferry, Franklin, Garfield, Grant, Lewis, Lincoln, Pend Oreille, Spokane, Stevens, and Whitman.
- The larvae attack vegetation by eating long strips of green plant tissue.
- Larvae damage to fields can result in 10 to 20 percent yield reduction.

Certificate Contacts

USDA-APHIS Spokane Office (509) 353-2950	**USDA-APHIS** Ellensburg Office (509) 925-1188	**WSDA-Spokane** (509) 477-4796	**WSDA-Yakima** (509) 225-2605
WSDA–Bellingham (360) 676-6739	**WSDA–Othello** (509) 488-2862	**WSDA–Wenatchee** (509) 662-6161	**WSDA–Ellensburg** (509) 962-7720

For more information on hay or straw certification, contact Tom Wessels, (360) 902-1984 or *twessels@agr.wa.gov*

Statewide toll-free phone number: 1-877-301-4555
On the web at http://agr.wa.gov

Oregon Department of Agriculture (503) 986-4635 • Idaho Department of Agriculture (208) 332-8500

OLYMPIA OFFICES — **PO Box 42560, 1111 Washington ST SE, Olympia, WA 98504-2560** — **fax (360) 902-2093**

ADMINISTRATION ..... **(360) 902-2010 / e-mail: pmdweb@agr.wa.gov**
Bob Arrington, Laurie Mauerman, Becca Sotelo

REGISTRATION SERVICES
Ted Maxwell, Angela Owen
Deborah Bahs, Ed Von Grey, Perry Beale, James Cowles, Bridget Moran, Ed Thompson (Endangered Species Program)
Pesticide Registration ..... **phone: (360) 902-2030 / e-mail: pestreg@agr.wa.gov**
Fertilizer Registration and Compliance ..... **phone: (360) 902-2025 / e-mail: fertreg@agr.wa.gov**
Feed Registration and Compliance ..... **phone: (360) 902-2025 / e-mail: feedreg@agr.wa.gov**
Evan Evans, Ali Kashani, Neil Lanning (Feed & Fertilizer Compliance)
Lizette Beckman, Steve Foss, Erik Johansen, Jef Lucero, Shannon Lumsden, Mike Norman, Lynn Sheridan, Debbie Tejeda, Jennifer Watson-Santos, Wendy Sue Wheeler (Feed, Fertilizer and Pesticide Registration/Feed & Fertilizer Tonnage)

PESTICIDE COMPLIANCE ..... **(360) 902-2040 / e-mail: compliance@agr.wa.gov**
Jeff Britt, Val Davis, Paul Figueroa, Bob Merkel, Dan Suomi (Compliance Investigations)
Joel Kangiser, Reola Loomis, Kathi Matherly, Cliff Weed (Administration)

LICENSING & REGISTRATION ..... **e-mail: license@agr.wa.gov**
Irene Beckman, Tricia Bertsch, Lois Hagen, Rickie Lehto, Margaret Tucker, Hugh Watson, Kirsten Williams

PROGRAM DEVELOPMENT
Maryann Connell, Ann Wick
Kirk Cook (Ground Water Quality)
Pesticide Disposal Program ..... **phone: (360) 902-2056 / e-mail: wastepesticide@agr.wa.gov**
Joe Hoffman, Rod Baker, Kim Hoffman

YAKIMA BRANCH — **21 North 1st Ave, Suite 236, Yakima, WA 98902-2663** — **fax (509) 575-2210** — **e-mail: gbuckner@agr.wa.gov**

Gary Buckner, Gail Amos, Jim Bach, Lee Barigar (Pesticide Compliance)
Jorge Lobos, Veronica Segura (Farmworker Education & Licensing)
Mike McCormick (Feed & Fertilizer Compliance; Pesticide Disposal)

WENATCHEE BRANCH — **1505 N. Miller St, Suite 140, Wenatchee, WA 98801-1569** — **fax (509) 664-3170** — **e-mail: gbuckner@agr.wa.gov**

Matt West, David Zamora (Pesticide Compliance)
Flor Tovar (Licensing & Farmworker Education)
Ed Von Grey (Endangered Species Program)

SPOKANE BRANCH — **222 N. Havana, Suite 203, Spokane, WA 99202-4776** — **fax (509) 533-2621** — **e-mail: tschultz@agr.wa.gov**

Tim Schultz, Scott Nielsen, Jeff Zeller (Pesticide Compliance)
Brent Perry (Feed & Fertilizer Compliance)

MOSES LAKE BRANCH — **821 E. Broadway Ave, Suite 4, Moses Lake, WA 98837** — **fax (509) 766-2576** — **e-mail: tschultz@agr.wa.gov**

Byron Fitch (Pesticide Compliance/Chemigation)
Tom Hoffmann (Chemigation/Fertigation Technical Assistance Program)

WSDA Regional Free Pesticide Disposal Event Schedule

SUMMER 2003:

Location	Date	Sign up by
Mount Vernon	19-Aug	17-Jul
Seattle	20-Aug	17-Jul
Centralia	21-Aug	18-Jul
Vancouver	22-Aug	18-Jul

FALL 2003:

Location	Date	Sign up by
Pullman	16-Sep	29-Jul
Dayton	17-Sep	29-Jul
Pasco	18-Sep	29-Jul
Wenatchee	7-Oct	18-Aug
Okanogan	8-Oct	18-Aug
Oroville	9-Oct	18-Aug

SPRING 2004:

Eastern WA		Western WA
Chelan	Othello	Lynden
Clarkston	Prosser	Snohomish
Coulee City	Quincy	Puyallup
Davenport	Tekoa	Olympia
Mattawa	Yakima	

Please contact us to sign up, or to be notified of future events in your area.

Write to: WSDA Waste Pesticide Program
PO Box 42589
Olympia, WA 98504-2589

Or call: 360-902-2056
Toll free: (877) 301-4555, select menu 1, then menu 5

Email: *wastepesticide@agr.wa.gov*

Change of Address?

Please notify us of any change to your mailing address to ensure you receive future information affecting your pesticide license. Make any changes to the mailing label below and return to WSDA.

WSDA WASHINGTON STATE DEPARTMENT OF AGRICULTURE

Pesticide Management Division
PO BOX 42589
OLYMPIA WA 98504-2589

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